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Access DB# 55813

SEARCH REQUEST FORM

Scientific and Technical Information Center

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

_____

Earliest Priority Filing Date: _____

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

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NA Sequence (#) _____

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Structure (#) _____

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Fulltext _____

Patent Family _____

Other _____

Vendors and cost where applicable

STN ✓

Dialog _____

Questel/Orbit _____

Dr.Link _____

Lexis/Nexis _____

Sequence Systems _____

WWW/Internet _____

Other (specify) _____

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FILE COVERS 1907 - 18 Dec 2001 VOL 135 ISS 26
FILE LAST UPDATED: 17 Dec 2001 (20011217/ED)

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L41 ANSWER 1 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2001:780767 HCAPLUS
DN 135:315582
TI Electrophoresis separation and treatment of **samples**
IN Conlan, Brendon Francis; Gilbert, Andrew Mark; Nair, Hari; Ryan, Lucy Jane; Rylatt, Dennis Brian; Thomas, Theresa Marie
PA Gradipore Ltd., Australia
SO PCT Int. Appl., 44 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001078877	A1	20011025	WO 2001-AU444	20010418

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRAI AU 2000-6974 A 20000418
AU 2000-9013 A 20000726

AB An electrophoresis system for sepg. small macromols. comprising two electrophoretic systems, wherein each system comprises an anode buffer and cathode buffer chamber contg. an anode and cathode therein; an ion-permeable sepn. membrane positioned between the anode and cathode buffer chambers; an ion-permeable restriction membrane positioned either

side of the ion-permeable sepn. membrane to define first and second interstitial vols.; an elec. field applied between the buffer chambers, and wherein the two electrophoretic systems are in fluid communication with each other.

RE.CNT 3
RE
(1) Hideyuki, N; GB 2118975 A 1983
(2) Muroi; US 4749458 A 1988 HCAPLUS
(3) Perry; US 5087338 A 1992 HCAPLUS

L41 ANSWER 2 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2001:721435 HCAPLUS
DN 135:254078
TI Measurement of complete electrical **waveforms** of tissue or cells
IN Sugihara, Hirokazu; Kamei, Akihito; Kobayashi, Yasushi; Taketani, Makoto; Mitsumata, Tadayasu
PA Matsushita Electric Industrial Co., Ltd, Japan
SO U.S., 16 pp., 5563067Cont.-in-part of U.S. 5,563,067.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6297025	B1	20011002	US 1996-662629	19960613
	EP 689051	A2	19951227	EP 1995-108977	19950609
	EP 689051	A3	19971015		
	R: DE, FR, GB, IT				
	JP 08062209	A2	19960308	JP 1995-144768	19950612
	JP 3204875	B2	20010904		
	CN 1131744	A	19960925	CN 1995-108517	19950613
	CA 2215835	AA	19970731	CA 1997-2215835	19970124
	WO 9727318	A1	19970731	WO 1997-JP153	19970124
	W: CA, CN, JP, KR, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 823483	A1	19980211	EP 1997-900768	19970124
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	CN 1183121	A	19980527	CN 1997-190217	19970124
PRAI	JP 1994-130176	A	19940613		
	US 1995-464116	A2	19950605		
	JP 1996-9857	A	19960124		
	US 1996-662629	A	19960613		
	WO 1997-JP153	W	19970124		

AB A method of observing a **phys.** and chem. property of a tissue or cell by using an app. which comprises at least a cell **culturing** means, an environment conditioning means, an observing means and a comparing means, comprising the steps of (A) **culturing** the tissue or cell by the cell **culturing** means, (B) maintaining a first **phys.** and chem. environment around the tissue or cell by the cell **culturing** means, (C) observing a first **phys.** and chem. property of the tissue or cell in the first **phys.** and chem. environment by the observing means, (D) changing the first **phys.** and chem. environment to a second **phys.** and chem. environment by the environment conditioning means, (E) observing a second **phys.** and chem. property of the tissue or cell in the second **phys.** and chem. environment by the observing means, and (F) comparing the first **phys.** and chem. property of the tissue or cell with the second **phys.** and chem. property of the tissue or cell by the comparing means. An electrode was coated with collagen before a section of rat cerebral cortex was placed and **cultured** on it. **Culture** conditions were changed (methamphetamine was added) and the potential variation accompanied by activities of the nerve cells were measured before and after the change. Chronic administration, i.e. for 3 days, of methamphetamine produced irreversible changes in the evoked potentials.

RE.CNT 17
RE
(1) Ambros-Ingerson; Brain Research 1993, V620, P237 HCAPLUS
(2) Anon; JP 5584148 1980
(6) Anon; EP 0585933 A2 1994 HCAPLUS
(13) Gross, G; Journal of Neuroscience Methods 1982, V5, P13 MEDLINE
(14) Nisch, W; Biosensors & Bioelectronics 1994, V9, P737 HCAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 3 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2001:713653 HCAPLUS
DN 135:254073
TI New apparatus and method for electrophysiological testing of biological membranes.
IN Trumbull, Jonathan D.; Bertrand, Daniel C.; Briggs, Clark A.; Mckenna, David G.; Maslana, Eugene S.; Blanchard, David P.; Pan, Jeffrey Y.; Bojan, Peter M.; Nemcek, Thomas A.
PA Abbott Laboratories, USA
SO PCT Int. Appl., 59 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001071312	A2	20010927	WO 2001-US9110	20010321
	W: AU, CA, JP, MX, NO				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
PRAI	US 2000-532686	A	20000322		
	US 2001-790871	A	20010223		

AB The invention concerns a method and app. for running a plurality of tests concurrently to obtain data relating to the electrophysiol. properties of receptors and channels in biol. membranes of test subjects, such as, for example, Xenopus oocytes. The invention further provides software for controlling, acquiring, and recording data relating to electrophysiol. properties of receptors and channels in biol. membranes of test subjects, such as, for example, oocytes. This invention increases the throughput rate for expts. and assays employing receptors and ion channels expressed in biol. membranes of test subjects, such as, for example, oocytes. In the case of an oocyte, these receptors and channels may be natively expressed (endogenous), may be placed into the oocyte (exogenous), or may be expressed from other RNA or DNA previously placed into the oocyte (exogenous). The invention provides a means for a sole researcher to operate a plurality of electrophysiol. test stations in the time and space conventionally required by a single electrophysiol. test station. The invention automates these stations and provides a means for a sole individual to perform large sets of expts. that would be **phys**. and mentally exhausting in the absence of this invention. In addn., this invention provides efficient database and data anal. software integrated with the data acquisition software, thereby increasing the user's data-handling productivity to keep pace with the augmented data generation capacity. Diagrams describing the app. are given.

L41 ANSWER 4 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2001:247240 HCAPLUS
DN 134:263134
TI Biomolecular attachment sites on microelectronic arrays and methods thereof
IN Havens, John R.; Onofrey, Thomas J.; Greef, Charles H.; Kevorkian, Gregory J.; Krotz, Jain; Lykstad, Kristie L.; Raymond, Daniel E.; Reese, Howard R.; Rooney, Regina; Scott, John J.
PA Nanogen, Inc., USA
SO PCT Int. Appl., 85 pp.
CODEN: PIXXD2
DT Patent

LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001023082	A2	20010405	WO 2000-US26725	20000929

W: AU, BR, CA, CN, JP, KR, NZ
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

PRAI US 1999-410368 A 19990930

AB This invention provides enhanced attachment of chem. moieties to the surface of an electronically addressable microchip array permeation layer. The attachment of the chem. moieties may occur at predetd. locations of the array or throughout the entire array. The attachment may be carried out by employing electronic potential at capture sites of the array to induce variations in **pH** of solns. in contact with the array or may be carried out by nonelectronically adjusting the **pH** of the solns. The chem. moieties contemplated are **pH** sensitive and form reactive centers for attachment to the array. Also provided is a novel grafting method for such attachment.

L41 ANSWER 5 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2001:180870 HCAPLUS
DN 134:219362
TI Method for evaluating biosensor electrode using electron mediators
IN Arai, Makoto; Kitawaki, Tomoki; Nakashima, Satoshi; Sakota, Yusaku
PA Omron Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001066274	A2	20010316	JP 1999-242257	19990827

AB A method is described for evaluating an accuracy of an electrode system of each biosensor at the earlier stage of its manufg. process than the conventional way. An evaluation liq. contg. potassium ferrocyanide and potassium ferricyanide with an equal or more than one molar Fe3+/Fe2+ ratio is supplied to the electrode system prior to the reagent layer-forming process. A response curve is obtained upon applying an elec. potential higher than the redox potential between a working electrode and a ref. electrode constituting the electrode system. The response curve thus obtained approximates the response curve obtainable upon measuring the blood glucose concn. using this electrode system.

L41 ANSWER 6 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2001:70374 HCAPLUS
DN 135:42865
TI Polymeric liquid membrane electrodes incorporated with macrocyclic hexaamines for screening adenine nucleotides
AU Szymanska, Iwona; Radecka, Hanna; Radecki, Jerzy; Pietraszkiewicz, Marek; Pietraszkiewicz, Oksana
CS Institute of Animal Reproduction and Food Research, Polish Academy, of Sciences, Olsztyn, PL-10-747, Pol.
SO Comb. Chem. High Throughput Screening (2000), 3(6), 509-517
CODEN: CCHSFU; ISSN: 1386-2073
PB Bentham Science Publishers
DT Journal
LA English
AB Lipophilic macrocyclic hexaamines supported by a poly(vinyl chloride) PVC matrix were used for the construction of liq. membrane electrodes sensitive toward adenine nucleotide polyanions. The membrane potential strongly depended on the **pH** of the sample soln. This phenomenon occurs due to the ability of the ionophore to accept protons. Therefore, the optimum **pH** was detd. based on potential-**pH** profile. The potential measurements were carried out at **pH** 6.0

in the presence of 10-2 M 2-[N-morpholino] ethanesulfonic acid (MES) buffer. The potential response of these electrodes toward ATP-4 and/or HATP-3 was close to the Nernstian slope. The selectivities against ADP-3, AMP-2, HPO4-2, and monovalent inorg. anions were estd. using the matched potential method. Chloride ions slightly affected potential response of the electrodes toward ATP-4/HATP-3. The influence of ionophore chem. structure on the selectivity and the sensitivity of these electrodes is briefly discussed.

RE.CNT 33
RE
(3) Bakker, E; Chem Rev 1997, V97, P3083 HCAPLUS
(5) Chu, Y; J Am Chem Soc 1996, V118, P7827 HCAPLUS
(7) DeWitt, S; Curr Opin Biotechnol 1995, V6, P640 HCAPLUS
(8) Demirev, P; Anal Chem 1997, V69, P2893 HCAPLUS
(9) Dietrich, B; J Am Chem Soc 1981, V103, P1282 HCAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 7 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2000:900872 HCAPLUS
DN 134:53463
TI Apparatus and method for separating/crystallizing organic molecule
IN Akioka, Koji; Sanjoh, Akira
PA Sumitomo Metal Industries, Ltd., Japan
SO PCT Int. Appl., 106 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000077280	A1	20001221	WO 2000-JP3820	20000612
	W: CA, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	JP 2000351700	A2	20001219	JP 1999-167109	19990614
	JP 2001002500	A2	20010109	JP 1999-170796	19990617
	JP 2001187301	A2	20010710	JP 2000-49	20000104
	JP 2001213699	A2	20010807	JP 2000-22640	20000131
PRAI	JP 1999-167109	A	19990614		
	JP 1999-170796	A	19990617		
	JP 2000-49	A	20000104		
	JP 2000-22640	A	20000131		

AB An app. and a method are provided for sepg./crystg. an org. mol. such as a biopolymer (e.g, protein, enzyme). An app. for growing a crystal possesses one solid surface consisting of silicone oxide and another solid surface consisting of alumina. In this app., the first solid surface and the second solid surface are arranged so that both of them are simultaneously put in contact with a soln. contg. a protein to be crystd. The first solid surface and the second solid surface possess the surface potentials or zeta potentials which are different from each other upon the contact with the soln. For example, the first solid surface has neg. charges and the second solid surface has pos. charges, and thereby, a neg. charged protein is selectively adsorbed by the pos. charged second solid surface, which results in the growth of the protein crystal on the second solid surface. Detailed description of diagrams for the app. assembly is given.

RE.CNT 6
RE
(1) Sanjoh, A; Journal of Crystal Growth 1999, V196, P691 HCAPLUS
(2) Sanjoh, A; Journal of Crystal Growth 1999, V196, P691 HCAPLUS
(3) Sumitomo Metal Industries Ltd; JP 11130600 A HCAPLUS
(4) Sumitomo Metal Industries Ltd; JP 11130600 A HCAPLUS
(5) Sumitomo Metal Industries Ltd; WO 9923284 A1 1999 HCAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 8 OF 44 HCAPLUS COPYRIGHT 2001 ACS

AN 2000:881413 HCAPLUS
DN 134:39139
TI Potential gradient detector for electrophoresis
IN Sam, Fong Yau Li; Wei, Hongping; Zhang, Guixin
PA Ce Resources Pte Ltd., Singapore
SO PCT Int. Appl., 36 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000075650	A1	20001214	WO 2000-SG77	20000601

PI WO 2000075650
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
PRAI SG 1999-2707 A 19990604
AB An on-column detector for electrophoresis samples based on the principles of potential gradient detection, in which the electrodes for detection are **phys**. isolated from the electrophoretic sepn. process, but maintains the same elec. potential as the corresponding interior of the electrophoretic sepn. channel. Potential gradient detection is used to measure the applied elec. field at two points within the electrophoretic channel during electrophoresis. When sample components with cond. different from the electrophoretic medium passes between these two points, it causes a change in the potential gradient between the two points, which would be sensed by the sensing electrodes of the detector and registered by a data acquisition system. The app. can make use of conventional sepn. channel as well as sepn. channels on microchips. In accordance with the present invention, a sensor reservoir with elec. conductive medium is added and connected to the sepn. channel via a conductive element on the surface of the sepn. channel.
RE.CNT 1
RE
(1) Yokogawa Electric Corp; JP 11108890 A 1999 HCAPLUS

L41 ANSWER 9 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2000:840494 HCAPLUS
DN 134:48533
TI A new dynamic hydrogen reference electrode for applications in thin-film sensor systems
AU Nann, Thomas; Urban, Gerald A.
CS Institute for Microsystemtechnology, University of Freiburg, Freiburg, 79112, Germany
SO Sens. Actuators, B (2000), B70(1-3), 188-195
CODEN: SABCEB; ISSN: 0925-4005
PB Elsevier Science S.A.
DT Journal
LA English
AB The realization and applicability of a new dynamic hydrogen ref. electrode (DHRE) within an electrochem. microcell for sensor applications is reported. The electrodes are fabricated in thin-film technol. and fixed within a flow-through device. An exptl. setup for accurate electrochem. potential measurements is described. Smooth platinum, platinized platinum and pHEMA coated electrodes are investigated with regard to their initialization behavior, stability, reproducibility and interference with electrolytes. It is found that platinized platinum DHREs show excellent stability and reproducibility. For uncoated electrodes, the electrochem. potential is established within seconds. The potential is independent of the **pH** value within the range of **pH** 4-10.

Interference with sulfate and phosphate is obsd. Thus, the platinized platinum DHRE is well suited for bioanal. sensor applications, where the **pH** value is buffered and the concns. of the disturbing anions are const. or very low.

RE.CNT 12
RE
(1) Chang, J; J Phys Chem 1995, V99, P14798 HCAPLUS
(5) Lee, H; Anal Chem 1998, V70, P3377 HCAPLUS
(6) Pitti, C; Anal Lett 1979, V12, P439 HCAPLUS
(9) Sugishima, N; J Electrochem Soc 1994, V141, P3332 HCAPLUS
(12) Yee, S; Sens Actuators 1988, V15, P337 HCAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 10 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2000:830313 HCAPLUS
DN 133:360582
TI Apparatus for amperometric diagnostic analysis
IN Pottgen, Paul A.; Szuminsky, Neil J.; Talbott, Jonathan L.; Jordan, Joseph; Jordan, Colina L.
PA Tall Oak Ventures, USA
SO U.S., 19 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6153069	A	20001128	US 1995-386919	19950209

AB The present invention relates to a novel method and app. for the amperometric detn. of an analyte, and in particular, to an app. for amperometric anal. utilizing a novel disposable electroanal. cell for the quant. detn. of biol. important compds. from body fluids.

RE.CNT 7
RE
(1) Kuhn; US 5385846 1995 HCAPLUS
(2) Nankai; US 4897173 1990 HCAPLUS
(3) Pollmann; US 5288636 1994 HCAPLUS
(4) Szuminsky; US 5108564 1992
(6) Walling; US 5508171 1996 HCAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 11 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2000:670992 HCAPLUS
DN 134:159796
TI Novel type biosensor based on immobilized cholinesterase using SPV measurement technique
AU Fedosseeva, O. V.; Uchida, H.; Katsube, T.; Ishimaru, Y.; Iida, T.
CS Department of Functional Materials Science, Saitama University, Saitama, 338-8570, Japan
SO Chem. Sens., Tech. Dig. Int. Meet., 7th (1998), 317-319 Publisher: International Academic Publishers, Beijing, Peop. Rep. China.
CODEN: 69AJWI
DT Conference
LA English
AB The new measurement methods of Surface Photo Voltage (SPV) technique - phase shift method and single SPV were applied to the fabrication of a novel type biosensor based on immobilized cholinesterase. The two types of cholinesterase were utilized, acetylcholinesterase and butyrylcholinesterase, depending on the type of substrate. On the surface of the silicon wafer the 3-aminopropyltriethoxysilane, glutaraldehyde and cholinesterase layer were deposited. Characteristics of the sensor were studied in phosphate-buffered saline consisting of 15mM NaCl and 1mM phosphate buffer **pH** 7.0. The detn. limits of substrates were 9.0.times.10-7M, 2.7.times.10-6M and 4.1.times.10-6M for butyrylthiocholine iodide, acetylcholine iodide and acetylcholine chloride, resp. The activity of cholinesterase was inhibited in the

presence of alkaloids such as physostigmine and neostigmine.
RE.CNT 6
RE
(1) Babu, S; Pharmacology Biochem and Behaviour 1993, V45, P713 HCAPLUS
(2) Fernando, J; J Agric Food Chem 1993, V41, P511 HCAPLUS
(3) Inoue, S; Sensors and Actuators B 1996, V32, P23
(4) Owicki, J; Ann Rev Biophys Biomol Struct 1994, V23, P87 HCAPLUS
(6) Shimizu, M; Sensors and Actuators B 1994, V20, P187 HCAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 12 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2000:592452 HCAPLUS
DN 133:190164
TI Measuring **apparatus** and method for making the same
IN Igel, Gunter; Gahle, Jurgendr. ing.; **Lehmann, Mirko**
PA Micronas G.m.b.H., Germany
SO Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1030174	A2	20000823	EP 1999-125340	19991220
	EP 1030174	A3	20010103		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	DE 19907164	A1	20000914	DE 1999-19907164	19990219
	JP 2000241343	A2	20000908	JP 2000-38352	20000216
PRAI	DE 1999-19907164	A	19990219		

AB A measuring **app.** for the study of a liq. or fusible medium , consists of at least two elec. and/or optical conductive layers or stacks of layers, that are elec. and optically insulated from one another, deposited on a substrate layer. On the side of the substrate layer, the multilayers have a recess that borders the elec. and/or optical conductive layers. At least one layer in the stack of elec. and/or optical conductive layers is arranged at a distance from the bottom of the recess.

L41 ANSWER 13 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2000:536390 HCAPLUS
DN 134:248953
TI Non-invasive measurement of cell **membrane** associated proton gradients by ion-sensitive field effect transistor arrays for microphysiological and bioelectronical applications
AU **Lehmann, Mirko**; Baumann, Werner; Brischwein, Martin; Ehret, Ralf; Kraus, Michael; Schwinde, Anne; Bitzenhofer, Matthias; Freund, Ingo; Wolf, Bernhard
CS Universitat Rostock, Biophysik, Rostock, D-18057, Germany
SO Biosens. Bioelectron. (2000), 15(3-4), 117-124
CODEN: BBIOE4; ISSN: 0956-5663
PB Elsevier Science S.A.
DT Journal
LA English
AB The **pH** in the cellular microenvironment (**pHM**) is an important regulator of cell-to-cell and cell-to-host interactions. Addnl. the extracellular acidification rate of a cell culture is an important indicator of global cellular metab. In a new approach a biocompatible ion-sensitive field effect transistor (ISFET)-array was developed to measure the **pHM** close to a surface and the global extracellular acidification rate at the same time. This ISFET-array is part of a new multiparametric microsensor chip. The paper highlights some basic applications of this method for in-vitro measurements. Using a fluid perfusion system for cell culture media, it is possible to measure the **pHM** of few (five to ten) adherent tumor cells in a distance of 10-100 nm from the cell plasma **membrane**. Expts. showed a **pHM**-value of 6.68.+-.0.06 **pH**. Further expts. suggest

that both the low **pH**, and the extracellular acidification rate of the examd. tumor cell line are mainly built up by glycolysis.

RE.CNT 30
RE
(5) Daly, P; Cancer Res 1989, V49, P770 HCAPLUS
(7) Ehret, R; Biosens Bioelectron 1997, V12(1), P29 HCAPLUS
(9) Flier, J; Science 1987, V235, P1492 HCAPLUS
(10) Gerweck, L; Cancer Res 1996, V56, P1194 HCAPLUS
(12) Griffiths, J; Br J Cancer 1991, V64, P425 HCAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 14 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2000:487726 HCAPLUS
DN 133:249202
TI Biosensors with amperometric detection of enzymatically controlled **pH**-changes
AU Bardea, Amos; Katz, Eugenii; Willner, Itamar
CS Institute of Chemistry, The Hebrew University of Jerusalem, Jerusalem, 91904, Israel
SO Electroanalysis (2000), 12(10), 731-735
CODEN: ELANEU; ISSN: 1040-0397
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB New biosensors based on amperometric detection of enzymically controlled **pH**-changes are described. Pyrroloquinoline quinone (PQQ) is assembled as a monolayer onto a Au-electrode, and .alpha.-chymotrypsin or urease is covalently linked to the PQQ-monolayer electrode. Biocatalyzed hydrolysis of N-acetyl-4-tyrosine Et ester by .alpha.-chymotrypsin or biocatalyzed degrdn. of urea by urease alters the **pH** of the electrolyte soln. The changes in the **pH** are sensed by the redox-potential of the PQQ-redox-active units assocd. with the electrode. Tethering of electroactive **pH**-insensitive, ferrocene units to the protein enables the sensing of the **pH** variations by following the p.d. between PQQ and ferrocene electroactive units. This enables the use of the integrated PQQ-ferrocene-tethered enzyme electrode as a **pH**-controlled biosensor with an internal potential ref.

RE.CNT 27
RE
(3) Guilbault, G; Anal Chem 1973, V45, P417 HCAPLUS
(4) Guilbault, G; Anal Chim Acta 1970, V52, P287 HCAPLUS
(5) Heleg-Shabtai, V; J Am Chem Soc 1997, V119, P8121 HCAPLUS
(6) Heller, A; J Phys Chem 1992, V96, P3579 HCAPLUS
(7) Jin, W; Biosens Bioelectron 1995, V10, P823 HCAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 15 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2000:462502 HCAPLUS
DN 133:40215
TI Bi-mediator-based multi-enzyme biosensor and its application
IN Guo, Dingli; Shieh, Paul; Goldberg, Esfir
PA Biomedix Inc., USA, USA
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 32 pp.
CODEN: CNXXEV
DT Patent
LA Chinese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1219676	A	19990616	CN 1998-123464	19981027
	US 6033866	A	20000307	US 1997-986974	19971208
PRAI	US 1997-986974	A	19971208		

AB The biosensor consists of sensitive electrode with the first redox mediator, reagent carrying strip made of porous fiber, and ref. electrode. The biosensor may have red blood cell filtering membrane set between the reagent carrying strip and the ref. electrode. The reagent carrying strip

contains enzymes, the second redox mediator, surfactant, stabilizing agent, and **pH** buffering agent. The reagent carrying strip is set between the sensitive electrode and the ref. electrode, or is set on the conducting layers of the electrodes. The first redox mediator is from ferrocene ion or carboxylic acid ferrocene, benzoquinone, tetrathiofulvalene, ferrocene, dimethylferrocene, hydroquinone. The second redox mediator is from tetramethylbenzidine, o-dianisidine, o-toluidine, and aminophenazone, aminoantipyrine and aminoantipyrine and dimethylaniline, CN-, Fe(CN)64-, Co(NH3)62+, Sn2+, S2-, etc. The surfactant is from Triton X-100, Na lauryl sulfate, lauryl sarcosine Na salt, hydroxypropylmethylcellulose, capryl amphoteric carboxylpropionate. The stabilizing agent is from animal glue, agar, bovine serum albumin, glutamine, mannitol, arabic gum, and polypeptide methylcellulose. The **pH** buffering agent is from citrate, succinate, trihydroxymethylaminomethane, phosphate. The red blood cell filtering membrane is from polysulfone film, polysulfone or polycarbonate film with polyvinylpyrrolidone, poly(vinyl alc.), poly(acrylic acid), animal glue, ethylcellulose, or glass fiber film with polyvinylpyrrolidone, poly(vinyl alc.), poly(acrylic acid), alginic acid, animal glue, ethylcellulose, or polyvinyl glycol stearate. The anal. method using the biosensor comprises putting blood onto the sampling site of the ref. electrode, exerting static voltage between the ref. electrode and the sensitive electrode, detg. the current flow through the electrodes, establishing calibration curve of blood substrate concn. vs. the current, and detg. the substrate concn. of blood sample.

L41 ANSWER 16 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2000:456207 HCAPLUS
DN 133:249195
TI Novel type cholinesterase sensor based on SPV measurement technique
AU Fedosseeva, O. V.; Uchida, H.; Katsube, T.; Ishimaru, Y.; Iida, T.
CS Department of Functional Materials Science, Saitama University, Urawa, Saitama, 338-8570, Japan
SO Sens. Actuators, B (2000), B65(1-3), 55-57
CODEN: SABCEB; ISSN: 0925-4005
PB Elsevier Science S.A.
DT Journal
LA English
AB The surface photovoltage (SPV) technique was applied to the fabrication of a novel type biosensor based on immobilized cholinesterase. Two types of cholinesterase were utilized, acetylcholinesterase and butyrylcholinesterase, depending on the types of substrates. On the surface of the silicon wafer the cholinesterase layers were immobilized by using 3-aminopropyltriethoxysilane and glutaraldehyde. Characteristics of the sensor were studied in phosphate-buffered saline contg. 15 mM NaCl and 1 mM phosphate buffer, **pH** 7.0. The detection limits of the substrates were 9.0.times.10-7 M, 2.7.times.10-6 M, and 4.1.times.10-6 M for butyrylthiocholine iodide, acetylcholine iodide, and acetylcholine chloride, resp. The activity of the cholinesterase was inhibited by the presence of alkaloids such as physostigmine and neostigmine.
RE.CNT 12
RE
(1) Bernabei, M; Anal Lett 1991, V24(8), P1317 HCAPLUS
(3) Breuel, H; Int J Clin Pharmacol Ther Toxicol 1993, V31, P230 HCAPLUS
(5) Harame, D; IEEE Trans Electron Devices 1987, VED-34, P1700 HCAPLUS
(7) Kuznetsova, L; Ukr Biochem J 1988, V60, P35 HCAPLUS
(8) La Rosa, C; Anal Chim Acta 1994, V295, P273 HCAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 17 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2000:199075 HCAPLUS
DN 132:233966
TI Method and chemical sensor for determining concentrations of hydrogen peroxide and its precursor in a liquid
IN Lin, Meng Shan; Wu, Yi Cong; Lai, Jung Sheng; Jan, Bor Iuan; Tseng, Ta Feng; Shih, Wei Chung

PA National Science Council, Taiwan
SO U.S., 12 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6042714	A	20000328	US 1997-984775	19971204
PRAI TW 1997-86105885		19970502		

AB A new method which employs a mixed-valence cluster of Myz+[Fe(II)(CN)6] coated on an electrode surface to det. hydrogen peroxide concn. electrochem. is developed. M of the mixed-valence compd. can be Co, Ni, Cr, Sc, V, Cu, Mn, Ag, Eu, Cd, Zn, Ru or Rh; z is the valence state of M; and y=4/z. In addn., this invention also reveals a new approach to det. a concn. of a hydrogen peroxide precursor, wherein a catalyst is immobilized in the matrix or on the surface of the mixed-valence compd. on the electrode. In a typical biochem. system, the catalyst can be a glucose oxidase and blood sugar is catalyzed to form hydrogen peroxide.

RE.CNT 7
RE
(1) Anon; WO 9521934 A1 1995 HCAPLUS
(2) Chen-Xin; Analytica Chimica Acta 1995, V310(1)
(4) Conover; US 4713165 1987 HCAPLUS
(6) Milardovic; Analytica Chimica Acta 1997, V350(1-2) HCAPLUS
(7) Schiller; US 4340448 1982 HCAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 18 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 2000:129476 HCAPLUS
DN 132:177700
TI A sensitive enzyme electrode apparatus for measuring creatinine
IN Yokoi, Masayuki; Okano, Takeshi
PA Sekisui Chemical Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000055864	A2	20000225	JP 1998-223148	19980806

AB An enzyme electrode app. excellent in measuring sensitivity and reproducibility is provided for measuring creatinine with a short process without laborious operations for measurement. The app. comprises an electrode cell and a measuring means for measuring the amt. of creatinine in a test sample. The electrode cell is filled with the insol. carrier (e.g., polystyrene latex) on which creatinine deiminase is immobilized. The measuring means measures the amt. of creatinine in the test sample by detg. ammonia generated in the electrode cell by the reaction of creatinine in the sample and creatinine deiminase. The detn. of ammonia is carried out by measuring the extent of change in cond., **pH**, or redox potential of the test liq.

L41 ANSWER 19 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1999:595483 HCAPLUS
DN 131:196685
TI Automated micro-apparatus for measuring membrane potential
IN Karube, Isao; Saitoh, Takashi
PA Japan
SO PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9946588	A1	19990916	WO 1999-JP1224	19990312
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 9932772	A1	19990927	AU 1999-32772	19990312
	EP 1067378	A1	20010110	EP 1999-939219	19990312
	R: DE, FR				
PRAI	JP 1998-80182	A	19980312		
	WO 1999-JP1224	W	19990312		

AB An automated micro-app. is described for measuring membrane potential, based on the technique developed for controlling a membrane denaturation reaction without using a **phys**. shearing force. For example, a method is provided for inducing a destruction at a limited portion of membrane such as biomembrane by giving a stimulus such as light to the stimulus-activatable compd. located on the membrane. In the application to a microelectrode, this method facilitates its insertion into a cell, overcoming the difficulty encountered so far in the use of a metal microelectrode, and making the measurement of membrane potential in a cell much easier. Since the integration of metal microelectrode is realistic, this method opens the way for developing a neural interface in the field of barrier-free technol.

RE.CNT 7

RE

(1) Anon; CN 1131744 A

(2) Anon; US 5563067 A

(3) Anon; EP 689051 A

(4) Fujitsu Ltd; JP 06-308118 A 1994 HCAPLUS

(5) Fujitsu Ltd; JP 08-122326 A 1996 HCAPLUS

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 20 OF 44 HCAPLUS COPYRIGHT 2001 ACS

AN 1999:595338 HCAPLUS

DN 131:196708

TI A technique for piercing specific site of cell membrane

IN Karube, Isao; Saitoh, Takashi

PA Japan

SO PCT Int. Appl., 49 pp.
CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9946361	A1	19990916	WO 1999-JP1223	19990312
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 9932771	A1	19990927	AU 1999-32771	19990312
	EP 1063287	A1	20001227	EP 1999-939150	19990312
	R: DE, FR				
PRAI	JP 1998-80177	A	19980312		
	WO 1999-JP1223	W	19990312		

AB A technique is described for piercing cell membrane at the specific site by regulating membrane denaturation reaction without using **phys**. shear force. Namely, a method is developed for inducing destruction at

the specific site of membrane such as biomembrane by giving a stimulus (light, etc.) to the stimulus-activatable compd. located on the membrane. The membrane structures such as the cells with membrane destruction induced at a specific site by this method are provided. The use of these membrane structures makes it practical to inject a substance such as gene into a cell. App. part materials are provided for inducing membrane destruction at a specific site. These app. part materials include microinjectors, micromanipulators and microelectrodes, for example. By this method, it has become easy to pierce cell membrane, overcoming the difficulties encountered with conventional techniques.

RE.CNT 10
RE
(1) The Institute Of Physical And Chemical Research; CA 1284302 C HCAPLUS
(2) The Institute Of Physical And Chemical Research; EP 137504 A HCAPLUS
(3) The Institute Of Physical And Chemical Research; EP 137504 B HCAPLUS
(5) The Institute Of Physical And Chemical Research; US 5013660 A HCAPLUS
(6) The Institute Of Physical And Chemical Research; JP 60083584 A HCAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 21 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1999:312159 HCAPLUS
DN 131:113257
TI Mathematical simulation of enzyme biosensors with multilayer charged membranes
AU Rossokhaty, V.; Rossokhataja, N.
CS National University of Ukraine, Kiev, 253222, Ukraine
SO Eurosensors XII, Proc. 12th Eur. Conf. Solid-State Transducers 9th UK Conf. Sens. Their Appl. (1998), Volume 2, 829-832. Editor(s): White, N. M. Publisher: Institute of Physics Publishing, Bristol, UK. CODEN: 67PNAZ
DT Conference
LA English
AB Math. model of the enzyme biosensor with multilayer charged membrane is developed. The charged layer of membrane is supposed to be penetrable for any particles and formed by built-in uniformly distributed charge. The Michaelis-Menten theory is used for description of the reaction velocity. The model is reduced to one-dimensional initial boundary value problem for the system of second-order partial differential equations describing diffusion-drift transport of reaction components and products in membrane and Poisson equation for electrostatic potential. The discrete model is constructed. The results of numerical expt. are in good qual. fit with results of **phys.** one. Created package can be easily adopted for membranes with any no. of layers.
RE.CNT 4
RE
(1) Caras, S; Anal Chem 1985, V57, P1917 HCAPLUS
(2) Ruckenstein, E; Biosensors 1988, V3, P269
(3) Ruckenstein, E; Chem Eng Sci 1984, V39, P1185 HCAPLUS
(4) Soldatkin, A; Analytica Chimica Acta 1993, V283, P695 HCAPLUS

L41 ANSWER 22 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1998:696968 HCAPLUS
DN 129:287562
TI System and **culture** apparatus for monitoring the **metabolic** activity of living cells
IN Zen, Mario; Margesin, Benno; Lui, Alberto; Chiarugi, Sergio; Grattarola, Massimo; Martinoia, Sergio; Chiarugi, Luca
PA Istituto Trentino Di Cultura, Italy; Omega S.R.L.
SO Eur. Pat. Appl., 11 pp. CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 870823	A1	19981014	EP 1998-103344	19980226

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

PRAI IT 1997-TO188 19970307

AB This invention describes a system for monitoring the metabolic activity of living cells. The system consists of a cell able to receive the cell population to be monitored, a means for supplying to a **culture** medium the cell, and means for detecting the **pH** value detd. by the catabolism of the cell population in the cell. This latter preferably comprises a casing which encloses a membrane on which the cell population can be fixed. In the casing there is formed a channel for the **culture** medium and a channel for supplying a soln. contg. the cell population. The channels flow alongside the membrane on opposite sides and are sepd. from one another. This invention provides a system for monitoring the catabolic activity of eukaryote and/or prokaryote cells, adapted to operate both continuously and intermittently, capable of effecting measurements both of qual. and quant. type and having a wide spectrum of applications which extend from research activity to routine anal.

L41 ANSWER 23 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1998:652254 HCAPLUS
DN 130:78194
TI The physiocontrol-**microsystem** (PCM): analysis of cellular behavior for biomedical research
AU Brischwein, Martin; Baumann, Werner; Ehret, Ralf; Kraus, Michael; **Lehmann, Mirko**; Wolf, Bernhard
CS AG Medical Physics Electron Microscopy, Institute Immunobiology, University Freiburg, Freiburg, D-79104, Germany
SO Microreact. Technol., Proc. Int. Conf., 1st (1998), Meeting Date 1997, 251-258. Editor(s): Ehrfeld, Wolfgang. Publisher: Springer, Berlin, Germany.
CODEN: 66USAY
DT Conference
LA English
AB Microsensors provide instruments particularly suited for the noninvasive anal. of cell and tissue **cultures**. Their outstanding benefit is the passive behavior of continuously working transducers, which allows the dynamic recording of function-specific cellular processes. The microsensor system presented is a modular arrangement of various planar and non-planar sensor elements arranged in small **culture** chambers. An optic access to the **cultures** (e.g. for high resoln. light microscopy and spectro-photometric techniques) enables a parallel and comparative data acquisition. The system was originally designed for biomedical research in chemotherapy and pharmacol. but it turned out to be an effective device for toxicol. and environmental research as well.
RE.CNT 12
RE
(3) Ehret, R; Biosensors & Bioelectronics 1997, V12, P29 HCAPLUS
(6) Gross, G; Biosensors & Bioelectronics 1995, V10, P553 HCAPLUS
(7) Jones, D; Methods in toxicology (Vol 2), Mitochondrial dysfunction 1993, P1 HCAPLUS
(9) McConnell, H; Science 1992, V257, P1906 HCAPLUS
(10) Shiono, S; Bioanalytical Applications of Enzymes 1992, V36, P151 HCAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 24 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1998:611980 HCAPLUS
DN 129:186428
TI Method of electrochemical detection of immunoactive macromolecules
IN Farmakovski, Dmitri Alexandrovich; Milanovski, Yevgeni Yurevich; Cherkasov, Vladimir Rurikovich; Biryukov, Yuri Sergeyevich; Komarov, Boris Vladimirovich
PA Biosensor Technology Ltd., UK; Cross, Rupert Edward Blout
SO PCT Int. Appl., 64 pp.
CODEN: PIXXD2

DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9837409	A1	19980827	WO 1998-GB548	19980220
	W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	RU 2107296	C1	19980320	RU 1997-102274	19970220
	AU 9863005	A1	19980909	AU 1998-63005	19980220
PRAI	RU 1997-102274	A	19970220		
	WO 1998-GB548	W	19980220		

AB A method of electrochem. detection of immunoactive macromols. in test solns., which involves producing an immunosensor comprising a specific-receptor-modified membrane; forming an electrochem. measuring cell from the immuno-sensitive sensor and a ref. electrode linked by a measuring instrument; placing the latter into the working soln., and detg. the displacement of the isoelec. point of the membrane in relation to the concn. of macromols. in the soln. under test, by measuring the cell potential with step-changes in the ionic strength of the working soln., in which the membrane is formed from electroconductive polymer by electrochem. synthesis from a monomer soln. contg. specific receptors on the surface of the potentiometric electrode; to det. the isoelec. point displacement of the membrane, a test soln. with an ionic strength greater than that of the working soln. at const. **pH** is added to the working soln.

L41 ANSWER 25 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1998:202926 HCAPLUS
DN 128:190075
TI Amperometric **pH** regulation. A flexible **tool** for rapid and precise temporal control over the **pH** of an electrolyte solution
AU Hagedorn, Rolf; Korlach, Jonas; Fuhr, Guenter
CS Mathematisch-Naturwissenschaftliche Fakultaet I, Humboldt-Universitaet, Berlin, D-10115, Germany
SO Electrophoresis (1998), 19(2), 180-186
CODEN: ELCTDN; ISSN: 0173-0835
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB Temporal control over both **pH** and ionic strength of an electrolyte soln. with high accuracy was achieved with a dynamic, computer feedback-controlled amperometric **pH**-stat device consisting of 4 **pH**-regulating electrodes placed in electrolyte reservoirs that are sepd. by dialysis membranes from a central compartment. Theor. predictions of the behavior of this arrangement, obtained by computer simulation, were validated by running temporal **pH** programs such as step functions, oscillations, and linear **pH** gradients. Deviations from nominal values given by the computer program are within the limits of accuracy of the **pH**-measuring electrodes. No vol. changes accompany a change of **pH** or cond. since ions are forced to leave or enter the central compartment through the membranes by the elec. force applied between the **pH**-regulating electrodes. The device is flexible, easy to use and easily miniaturized. The authors discuss a wide range of possible applications in biochem. and cell science. These include automated **pH** adjustment, isoelec. protein sepn., amperometric measurement of enzyme kinetics and the response of cell **cultures** to well-defined **pH** changes.

L41 ANSWER 26 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1997:417403 HCAPLUS
DN 127:153417
TI Measuring Donnan-related phenomena using a solid-state ion sensor and a concentration-step method
AU Eijkel, J. C. T.; Olthuis, W.; Kolev, S. D.; Bergveld, P.
CS Imperial College Sci., Technology and Medicine., Dep. Chem., Centre Analytical Sci., Zeneca/SB, South Kensington/London, SW7 2AY, UK
SO J. Membr. Sci. (1997), 127(2), 203-221
CODEN: JMESDO; ISSN: 0376-7388
PB Elsevier
DT Journal
LA English
AB Measurements are performed with a device consisting of an ISFET **pH** -sensor in the middle of a Ag/AgCl electrode, on top of which a microporous composite membrane is deposited. A sudden change of the salt concn. in the bathing electrolyte causes a transient change in the elec. potential of these sensors when measured vs. a ref. electrode in the bathing electrolyte. The potential transient is modulated by adsorption of protein to the membrane. To explain the measured transients, a model is presented for the measuring device describing the ion transport by the Nernst-Planck and Poisson equations, incorporating the different proton-dissocn. reactions occurring in the system, and the sensor responses to their potential detg. ions (the proton or the Cl- ion). A finite-difference soln. method is presented to solve the resulting differential equations. Measurements are performed before and after the adsorption of the model protein lysozyme to the membrane. Anal. of the measurement results indicates that the measured potential transient is caused by a change of the Donnan potential of the membrane, followed by a compensating change in the concn. of the potential detg. ion. It is proven that no diffusion potential is generated. In addn., it is shown that an interlayer of electrolyte between membrane and measuring electrode will not influence the measured response. The potential transients measured by the ISFET have a large amplitude and a longer duration than the Ag/AgCl-measured transients. An anal. shows that this is caused by the buffering action of the proton-dissocg. membrane groups. The longer duration results from the release of a large amt. of protons from binding to fixed groups, while chloride ions are not bound. The larger amplitude can be explained by refining the Donnan model to account for the inhomogeneous charge distribution in the membrane. The proton-dissocg. groups reside at the surface of the polystyrene beads, at which place the potential change on an ion step is larger than the av. in the membrane pore soln. This surface-potential change can be measured by the **pH**-sensitive ISFET because a proton release occurs from the surface-bound groups into the membrane pores changing the pore **pH** .

L41 ANSWER 27 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1997:362415 HCAPLUS
DN 127:39749
TI Effect of TCP material on **pH** value inside and outside phagocytes by using nanometric microelectrode
AU Chen, F.; Li, S.; Yan, Y.; Zheng, Q.; Zhang, X.
CS Biomed. Mater. Eng. Cent., Wuhan Univ. Technol., Wuhan, 430070, Peop. Rep. China
SO Bioceram., Proc. Int. Symp. Ceram: Med. (1996), 9, 209-212
CODEN: BPCMFX
PB Elsevier
DT Journal
LA English
AB Nanometric microelectrodes were applied to measure the **pH** values inside and outside phagocytes, which were **cultured** for 72 h resp. in TCP-bearing and TCP-free **culture** medium (c.m.). And also **pH** values in c.m. and TCP-bearing c.m. were measured as comparison. The results indicated that the **PH** values inside and outside phagocytes in TCP-bearing c.m. showed acidulous, while in other

conditions alkalescent. We think phagocytosis caused this difference because when particulate TCP was phagocytized, acid hydrolytic enzymes were released. This acidulous circumstance helped degrdn. by accelerating TCP material to be decompd.

L41 ANSWER 28 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1997:230037 HCAPLUS
TI Measurement of cellular signals with chemical sensitive fieldeffect transistors.
AU Baumann, W. H.; **Lehmann, M.**; Ehret, R.; Brischwein, M.; Wolf, B.
CS Institute Immunobiology, University Freiburg, Freiburg/Br., 79104, Germany
SO Book of Abstracts, 213th ACS National Meeting, San Francisco, April 13-17 (1997), BTEC-051 Publisher: American Chemical Society, Washington, D. C. CODEN: 64AOAA
DT Conference; Meeting Abstract
LA English
AB Apart from basic cell biol. research the study of cellular functions in vitro is fundamental to several fields of applications as cellular biosensors, reaching from clin. diagnostics and pharmacol. drug screening to environmental monitoring. The extracellular recording of cellular signals by semiconductor microsensors is mainly assocd. with ion fluxes across the cell **membrane**. Chem. sensitive field effect transistors (CHEMFETs) are used to measure ion- or enzyme-concns. Selectivity is achieved by the deposition of correspondent material(s) or **membrane**(s) on the gate insulator. The cell-sensor interface can be adapted in a wide range (for example by modifying the surface in geometry and material) to the requirements of the measurements. The measurement of the extracellular acidification of cells growing on a silicon sensorchip with 4 **pH**-sensitive CHEMFETs and 2 temp.-sensors in a flow-through system will be

L41 ANSWER 29 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1997:152709 HCAPLUS
DN 126:209105
TI Biosensor with surface photo-voltage technique
AU Chen, Deyong; Han, Jinghong; Cui, Dafu
CS Inst. Electron., Beijing, 100080, Peop. Rep. China
SO Proc. East Asia Conf. Chem. Sens., 2nd (1995), 233-235 Publisher: International Academic Publishers, Beijing, Peop. Rep. China. CODEN: 64AXA3
DT Conference
LA English
AB A surface photo-voltage (SPV) technique is applied a **pH** sensor and a penicillin sensor. Choosing silicon **pH** sensitive membrane, 5 kinds of std. buffer soln. (with different **pH** value) are measured, and a sensitivity of about 55.84mV/**pH** is obtained. With a membrane of cross linked bovine serum albumin(BSA)-penicillinase overcoating on Si3N4 film, a penicillin sensor is investigated. It responds linearly to penicillin in 0.005 M phosphate buffer with sensitivity of about 6.02mV/mM over the concn. ranges of 1-10mM.

L41 ANSWER 30 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1996:656965 HCAPLUS
DN 125:296650
TI Electrochemical system for rapid detection of biochemical agents that catalyze a redox potential change
IN Song, Herking; Hafeman, Dean G.
PA Molecular Devices Corporation, USA
SO U.S., 42 pp. CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5567302	A	19961022	US 1995-483249	19950607

AB The present invention relates to a system for detecting, in a reliable, precise and highly sensitive manner, biochem. agents such as enzymes that catalyze a redox potential change. One electrode is used to measure redox potential changes in an aq. electrolyte contg. the biochem. agents. Another electrode is used to deliver a feedback current to the electrolyte in response to measured changes in electrolyte redox potential. The amt. of feedback current or charge delivered through the electrode to the electrolyte is sufficient in magnitude to maintain a const. redox potential. Quantitation of the amt. of feedback current or charge necessary to maintain the const. redox potential may then be used to det. the amt. of biochem. agents present. Alternatively, the redox potential need not be kept const., but instead may be allowed to reach a new steady-state. Thus, the current, or charge, conducted by a feedback electrode to maintain a new steady-state potential in the presence of an enzymic reaction may be used to quantitate the amt. of enzymic activity present. The present invention provides precision in the quantitation results, high sensitivity in enzyme detection, and a wider dynamic range for quantitation of the biochem. agent. The invention is esp. useful for the detn. of enzyme labels used in immunoassays, e.g., .beta.-D-galactosidase, horseradish peroxidase, alk. phosphatase, and glucose oxidase.

L41 ANSWER 31 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1994:239316 HCAPLUS
DN 120:239316
TI Characterization of ultrafiltration membranes by simultaneous streaming potential and flux measurements
AU Nystrom, Marianne; Pihlajamaki, Arto; Ehsani, Neda
CS Lab. Tech. Polym. Chem., Lappeenranta Univ. Technol., Lappeenranta, FIN-53851, Finland
SO J. Membr. Sci. (1994), 87(3), 245-56
CODEN: JMESDO; ISSN: 0376-7388
DT Journal
LA English
AB A new app. was developed where streaming potentials and permeate fluxes of membranes could be measured simultaneously. In this way the effect of addn. of a protein, bovine serum albumin, on the potential and flux could also be studied. On addn. of protein the calcd. zeta potential of the membrane changed to be close to the potential of the protein at the **pH**. At very low or high **pH**, where the protein and the membrane had the same sign of charge, adsorption decreased and the potential of the membrane did not change fully to that of the protein. The point of zero charge of the protein-covered membrane was slightly higher than the isoelec. point of the protein.

L41 ANSWER 32 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1991:203139 HCAPLUS
DN 114:203139
TI An immobilized enzyme electrode containing **pH** buffer and permeable membrane specific to oxygen
IN Saito, Atsushi
PA NEC Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02287148	A2	19901127	JP 1989-107202	19890428
	JP 08020409	B4	19960304		
	US 5118404	A	19920602	US 1991-660911	19910227
PRAI	JP 1989-107202		19890428		
	JP 1989-201207		19890804		
	US 1990-514880		19900426		

AB An enzyme-contg. electrode is made by coating the surface of an

electrochem. device for detecting interfacial potential with a membrane contg. **pH** buffer, an immobilized enzyme (or a membrane contg. **pH** buffer and a membrane contg. an immobilized enzyme), and a oxygen-specific permeable membrane. The electrochem. device for detecting interfacial elec. potential is an ion-sensitive field-effect transistor (ISFET). The immobilized enzyme is glucose oxidase or gluconolactonase. Thus, a sensor for detecting glucose was made by coating the surface of an ISFET electrode with a **pH**-buffering membrane contg. bovine serum albumin, HEPES-Na, glutaraldehyde and glucose oxidase; impregnating the coated electrode in glutamic acid to retain the carboxyl group in the membrane for buffering the acids produced in enzyme reaction; and then coating the electrode with silicon soln. to form a permeable membrane. The linear assay range was 500 mg glucose/dL for the electrode contg. the **pH**-buffer and permeable membrane and was 100 mg/dL for one without the **pH**-buffer and permeable membrane.

L41 ANSWER 33 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1991:97558 HCAPLUS
DN 114:97558
TI Mediatorless peroxidase electrode and preparation of bienzyme sensors
AU Kulys, J.; Schmid, R. D.
CS Inst. Biochem., Vilnius, USSR
SO Bioelectrochem. Bioenerg. (1990), 24(3), 305-11
CODEN: BEBEBP; ISSN: 0302-4598
DT Journal
LA English
AB Fungal peroxidase (from Arthromyces amosus (ARP)), covalently immobilized on a graphite electrode, catalyzes the mediatorless redn. of hydrogen peroxide. In the **pH** range 4.92-7.00 the enzyme electrode steady-state potential reached a value of 995-908 m V (SHE) which is similar to the compd. I and compd. II single-electron redn. potentials. The enzyme electrode operated under diffusion-limiting conditions, and at hydrogen peroxidase concns. lower than 2.5 .mu.M the sensitivity was 0.84 A/M. A mediatorless ARP electrode was used to prep. glucose, methanol- and choline-sensitive bienzyme electrodes. The sensitivity of the electrodes based on covalently immobilized peroxidase and glucose oxidase (GO) or peroxidase and alc. oxidase (AO) was 2.6 and 0.6 mA/M, resp. The steady-state potential of the ARP/GO electrode was similar to that of the ARP electrode. The sensitivity of the peroxidase/choline oxidase (ChO) electrode with entrapped ChO was 0.48 mA/M. The **pH** optima of the ARP/GO and ARP/ChO electrodes were 6.0 and 8.7, resp. ARP, ARP/GO and ARP/ChO electrodes retained their efficiency for 2-7 days; however, ARP/AO electrodes were less stable.

L41 ANSWER 34 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1990:402988 HCAPLUS
DN 113:2988
TI Method and electrode for specific binding assays
IN Schasfoort, Richardus Bernardus Maria; Greve, Jan; Kooyman, Rob Peter Herman; Bergveld, Piet
PA Universiteit Twente, Neth.
SO PCT Int. Appl., 12 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 8910556	A1	19891102	WO 1989-NL29	19890426
	W: JP, US				
	RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
	NL 8801073	A	19891116	NL 1988-1073	19880426
	EP 413742	A1	19910227	EP 1989-905786	19890426
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
	JP 03505920	T2	19911219	JP 1989-505704	19890426
PRAI	NL 1988-1073		19880426		

WO 1989-NL29 19890426

AB Substances having specific binding partners (e.g. antigens and antibodies, nucleic acids and their complements) are assayed electrometrically by coating an electrode with the bonding partner, treating the coated electrode with a test sample, and exposing the treated electrode to different ion compns. (e.g. by changing salt solns. or by electrochem. producing ions using an addnl. metal couple. The electrode signal change is indicative of the type and amt. of the substance being assayed. The gate area of 1 of 2 ion-selective FET was coated with glutaraldehyde-immobilized antibody to human serum albumin (hSA). Both gate areas were rinsed with distd. H2O and equilibrated with an ion soln. contg. 0.001 M HEPES-NaOH **pH** 6.45 buffer. The medium was replaced instantaneously by ion shock medium 2 contg. 0.1 M HEPES-NaOH **pH** 6.45 buffer and the potential change between the gate areas of the 2 ion-selective FETs was recorded as a function of time with const. c.d. between source and drain. There was a great difference in the response curve when anti-hSA antibody-hSA complex was immobilized instead of just the antibody.

L41 ANSWER 35 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1990:3305 HCAPLUS
DN 112:3305
TI Bistability, electric potentials, and sensor behavior in an enzymatic reaction system
AU Malchow, H.; Felber, F.
CS Sekt. Phys., Humboldt-Univ. Berlin, Berlin, Ger. Dem. Rep.
SO J. Non-Equilib. Thermodyn. (1989), 14(3), 219-29
CODEN: JNETDY; ISSN: 0340-0204
DT Journal
LA English
AB A general expression for the substrate dependence of enzymic reaction rates including **pH** effects is derived. A special ionic enzyme kinetics in a continuously stirred-flow reactor which is membrane-coupled to a reservoir is treated as an example. Both bistability of the reaction and elec. potentials between the interior and exterior of the reactor can be obsd. having regard to mass and charge conservation as well as electroneutrality. The sudden jumps from one stable soln. branch to the other at crit. concn. values are regarded as the basic action principle of a nonequil. concn. threshold sensor.

L41 ANSWER 36 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1988:566559 HCAPLUS
DN 109:166559
TI A multiplexing programmable four-channel **pH**-control system
AU Tan, K. H.; Reed, H. L.
CS Meat Ind. Res. Inst. New Zealand, Hamilton, N. Z.
SO Lab. Pract. (1988), 37(6), 71-2
CODEN: LABPA3; ISSN: 0023-6853
DT Journal
LA English
AB A system is described for a 4-channel **pH** controller that uses 1 **pH** meter common to 4 electrodes and a programmable logic controller that coordinates the sequence of electrode switching and acid-alkali addn. Major advantages of using a programmable controller lie in the ease of channel expansion and reconfiguration of the unit to meet varying exptl. requirements.

L41 ANSWER 37 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1986:166834 HCAPLUS
DN 104:166834
TI Detection and automatic control of ammonium **ion** concentration in microbial **culture** with an ammonium **ion** selective electrode
AU Suzuki, Takahiro; Yasuda, Takashi; Yamane, Tsuneo; Shimizu, Shoichi
CS Sch. Agric., Nagoya Univ., Nagoya, 464, Japan
SO J. Ferment. Technol. (1986), 64(1), 63-70

CODEN: JFTED8; ISSN: 0385-6380
DT Journal
LA English
AB An NH4+-selective electrode (AISE) had a membrane of polyvinyl chloride in which the antibiotics nonactin and monactin were embedded. The detection range was 0.1-200 mM. The step response was 90% in 20 s. The output of the AISE increased 6% with a 1.degree. rise of temp. The output of the AISE was const. at **pH** 4-7. The selectivity coeff. of K+ was 0.158 and hence its interfering effect must be considered. The selectivity coeffs. of other cations were small enough to be negligible. Throughout a batch **culture** of Escherichia coli values calcd. by subtracting (selectivity coeff.) .times. (K+ concn.) from the detected output of the AISE agreed with actual concns. of NH4+. An automatic, const.-value, feedback control system of NH4+ was attempted by on-off controlled supply of soln. contg. both NH4+ and K+, the proportion of whose concns. was made equal to the proportion of their av. volumetric consumption rates by a microorganism in batch **culture**. By this control system, NH4+ concn. in **culture** supernatants of fed-batch **cultures** of E. coli and Saccharomyces cerevisiae could be maintained virtually at const. levels (5 .+-. 0.8 mM for the cultivation of E. coli and 50 .+-. 5 mM for the cultivation of S. cerevisiae).

L41 ANSWER 38 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1986:67541 HCAPLUS
DN 104:67541
TI Electrochemical **assembly**
IN Halling, Peter
PA University of Strathclyde, UK
SO PCT Int. Appl., 15 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 8504482	A1	19851010	WO 1985-GB101	19850315
	W: JP, US				
	RW: AT, BE, CH, DE, FR, GB, LU, NL, SE				
	EP 175732	A1	19860402	EP 1985-901481	19850315
	R: AT, BE, CH, DE, FR, GB, LI, LU, NL, SE				
PRAI	GB 1984-7835		19840327		

AB An electrochem. assembly which continuously monitors the level of NH3 in a fermenting medium utilizes a gas-permeable ion-permeable outer membrane which is capable of transmitting NH3 from the medium into the housing. A monitor electrode is located within the housing and incorporates a monovalent cation-sensitive glass inner membrane which is sepd. from the outer membrane by an electrolyte soln. which is **pH** buffered. The electrochem. app. also contains a ref. electrode located within the housing. The monovalent cation-sensitive inner membrane is sensitive to a limited range of small cations, i.e. NH4+, Na+. Although other volatile species are capable of traversing the membrane, they are incapable of producing cations in the electrolyte film to which the monitor electrode is sensitive. Thus, NH3 in the fermenting medium traverses the outer membrane and forms NH4+ in the aq. electrolyte film which alters the electrochem. potential of the inner membrane; this is measured elec. relative to the ref. electrodes.

L41 ANSWER 39 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1983:435573 HCAPLUS
DN 99:35573
TI A **hydrogen ion**-selective liquid-membrane microelectrode for measurement of the vacuolar **pH** of plant cells in suspension **culture**
AU Kurkdjian, Armen C.; Barbier-Brygoo, Helene
CS Lab. Physiol. Cell. Veg., CNRS-INRA, Gif-sur-Yvette, 91190, Fr.
SO Anal. Biochem. (1983), 132(1), 96-104

CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English
AB H+-selective microelectrodes were made according to the method described by D. Ammann et al. (1981). Some practical aspects of the prepn. and use of these microelectrodes for in vitro and in vivo **pH** measurements in plant vacuoles were examd. The microelectrodes can be kept for up to 48 h without modification of their slope (mV/**pH** unit) and resistance. The H+-selective liq. can be used >4 mo after being prepd. The vacuole is known to be the storage compartment of plant cells where solutes are accumulated; as an example, sucrose and a model protein, bovine serum albumin (BSA), were chosen to study the effect of solutes on the response of the microelectrodes. The slope of the regression line is not modified by sucrose (20-100 mM) added to citrate buffer soln., but it is slightly decreased when the microelectrodes are tested in the presence of BSA or in plant juice, indicating that some components of the cell sap can interfere with and modify the response of the microelectrodes. More expts. are needed to det. if proteins, ions, or another substance is the factor causing this effect. Microelectrodes with tip diams. in the range 0.3-0.6 .mu.m and elec. resistance in the range 2 .times. 1012 .OMEGA. are suitable for the measurement of vacuolar **pH** in plant cells. Their short response time (several seconds) when inserted into vacuoles makes them appropriate for following vacuolar **pH** modifications in situ.

L41 ANSWER 40 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1981:530307 HCAPLUS
DN 95:130307
TI Cells and **tissue culture** systems
AU Werrlein, Robert J.
CS Dep. Pathol., Univ. Bristol, Bristol, BS8 1TD, Engl.
SO Res. Monogr. Cell Tissue Physiol. (1981), 4(Appl. Ion-Sel. Microelectrodes), 257-77
CODEN: RMTPD8; ISSN: 0378-6129
DT Journal
LA English
AB WRL-10A cells were subcultured to det. the ion physiol. and the use of liq. ion exchangers and ion-selective microelectrodes for this type of expt. was evaluated. The intracellular K+ was comparable in attached and suspension **cultures**. When atm. CO2 was decreased from 4.5 to 1.5%, there was an immediate depression in oscillatory activity, a large upward shift in medium pO, followed by a recovery to a new steady state of rhythmic oscillatory behavior. When cells progressed from a low-d., exponential growth state to high-d., growth arrest state in suspensions, the extracellular K+ activity remained fairly const. At d. of 4 .times. 105-106 cells/mL, K+ activity was at an almost const. 4 mM. At 1-5 .times. 106 cells/mL, the activity decreased to 3.2 mM and became more variable; at d. >6 .times. 106 cells/mL, the extracellular K+ activity increased to 4-5 mM. In cell pellets, the av. K+ activity was 116 mM at low d. (4.0 .times. 105-2.5 .times. 106 cells/mL), decreased to 89 mM at higher d. (4-6 .times. 106 cells/mL, and at the greatest d. (>6.0 .times. 106 cells/mL) decreased to 82 mM. As populations in suspension increased their d. from 1 .times. 106 to 6 .times. 106 cells/mL, the media **pH** dropped from 7.45 to 7.35. At d. >6 .times. 106 cells/mL, the **pH** decreased further to 7.1. Continuous microelectrode **pH** recordings, taken at the fluid/air interface and then through the medium overlaying a high-d. population (18.3 .times. 106 cells/**culture**) show that (1) there was no **pH** gradient through the overlaying media, (2) the **pH** decreased from 7.66 to <6.78 when the electrode tip was positioned at the cell surface, (3) a **pH** microenvironment exists in the pericellular region of high-d. attached **cultures**, and (4) pericellular H+ activity could not be detected when the electrode was moved just 3 .mu.m from the cell surface. Thus, ion-selective microelectrodes can be used to study extracellular H+ activity in attached **cultures**. A discussion is also presented on the use of microenvironmental probes in **culture** systems.

L41 ANSWER 41 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1981:493418 HCAPLUS
DN 95:93418
TI Measuring the **metabolic** activity of animal or plant tissues
IN Sakato, Kuniaki; Tanaka, Hisao; Motohashi, Ryoichi
PA Kyowa Hakko Kogyo Co., Ltd. , Japan
SO Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 28793	A2	19810520	EP 1980-106752	19801103
	EP 28793	A3	19810805		
	EP 28793	B1	19831102		
	R: CH, DE, FR, GB				
	JP 56066749	A2	19810605	JP 1979-142689	19791102
PRAI	JP 1979-142689		19791102		

AB A potentiometric method is described for measuring the metabolic activity of animal or plant tissue in **culture** by contacting an electrode with the **culture** liquor and monitoring the current or potential generated by the tissue. The system employs an electrode having an anode, an internal electrolyte, a liq. junction for contact with an outside liq., and an exposed cathode, and is covered with a tissue-impermeable membrane. E.g., human KB cells incubated in Eagle's min. essential medium (**pH** 7.2) were monitored by an app. comprised of a Pt electrodes as cathode, Ag peroxide electrodes as anode, an anion-exchange membrane as liq. junction, 1M phosphate buffer (**pH** 7.0) as internal electrolyte, and a cellulose dialysis membrane. The change in current correlated well with the no. of cells.

L41 ANSWER 42 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1979:486702 HCAPLUS
DN 91:86702
TI Simple **pH** for finished **culture** medium
AU Caruana, Louis B.
CS Med. Technol. Program, Southwest Texas State Univ., San Marcos, TX, USA
SO Lab. Med. (1979), 10(5), 303
CODEN: LBMEBX; ISSN: 0007-5027
DT Journal
LA English
AB The **pH**, which often is crit. for most **culture** media, esp. Mueller-Hinton agar, is easily tested by using a std. combination electrode. This avoids the need for special surface electrodes. An av. of 3 sep. readings were taken to det. the final value. After sterilization of a **culture** medium, it was poured into a 50-mL beaker, and when cooled, the combination electrode was inserted into the solidified medium and the readings were made.

L41 ANSWER 43 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1979:435335 HCAPLUS
DN 91:35335
TI Microelectrodes, especially for measuring pO2
IN Petzold, Dietmar; Engelmohr, Ilka
PA Ger. Dem. Rep.
SO Ger. (East), 4 pp.
CODEN: GEXXA8
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DD 130374	Z	19780322	DD 1977-198247	19770405

AB A microelectrode, esp. for the detn. of pO in human and animal tissues, is

described that is composed of a Mo wire covered with an appropriate coating material and surrounded by an insulating layer at all areas except at the measuring region. On 1 end of the device is a nontraumatic needle and on the other a micro elec. connector. For use in pO detn. as well as EKG measurements and continuous muscle action potential detn., the Mo wire is coated with Au, and for **pH** detn. the coating is Bi. The uninsulated part of the device is covered with an O-permeable membrane for pO detn. In addn., the elctrode sheathing has graduated marks to facilitate insertion to a specified depth in the tissue.

L41 ANSWER 44 OF 44 HCAPLUS COPYRIGHT 2001 ACS
AN 1975:69979 HCAPLUS
DN 82:69979
TI Continuous real-time monitoring of **metabolic** parameters in growing bacterial **cultures**
AU Ladenson, Jack H.; Huebner, M.; Marr, J. Joseph
CS Sch. Med., Wasington Univ., St. Louis, Mo., USA
SO Anal. Biochem. (1975), 63(1), 56-67
CODEN: ANBCA2
DT Journal
LA English
AB Continuous monitoring of a bacterial **culture** for **pH**, growth, CO2, and NH3 was accomplished by means of in situ ion-sensitive electrodes. Changes in the metabolic parameters of Proteus **cultures** generally occurred about an hr before changes in growth were obsd. The time of max. CO2 prodn. preceded that of NH3 elaboration by this organism; however, the sequence was reversed when urea was added to the medium. This type of in situ monitoring system has great potential for the study of the metab. of growing organisms as well as for the early detection of growth in liq. **culture**.

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L50 ANSWER 1 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 2001-169815 [18] WPIX
DNN N2001-122460 DNC C2001-050948
TI Apparatus for conducting investigations on cell cultures comprises a receptacle holding the cell culture on the bottom and a reserve of nutrient medium, and a displaceable separator defining a small reactor space at the bottom.
DC A89 D16 S03
IN BAUMANN, W; BRISCHWEIN, M; EHRET, R; FREUND, I; **LEHMANN, M**; WOLF, B
PA (MICR-N) MICRONAS INTERMETALL GMBH; (MICR-N) MICRONAS GMBH
CYC 20

PI DE 19920811 A1 20001116 (200118)* 10p C12M001-18 <--
WO 2000071669 A1 20001130 (200118) DE C12M001-34 <--
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: JP US
ADT DE 19920811 A1 **DE 1999-19920811 19990506**; WO 2000071669 A1
WO 2000-EP3860 20000428
PRAI **DE 1999-19920811 19990506**
IC ICM C12M001-18; C12M001-34
ICS **C12Q001-02**
AB DE 19920811 A UPAB: 20010402
NOVELTY - A displaceable separator is provided in an apparatus for conducting investigations on cell cultures, which at the lower end of its travel defines a reaction space containing a cell culture covered in a nutrient medium at the bottom of a receptacle for fresh nutrient medium.
DETAILED DESCRIPTION - Apparatus for conducting investigations on cell cultures in a liquid culture medium comprises at least one receptacle for the culture medium and the cell culture and one or more measurement devices and/or sensors for taking measurements of the cell culture, the device is characterized by a separator body (7) which can be displaced to approach the bottom of the receptacle to define a reaction space (8) containing a partial volume of the culture medium (4) covering the cell culture (2).
USE - For conducting investigations on cell cultures.
ADVANTAGE - The apparatus allows rapid regeneration of the culture medium by raising and lowering the separator (7) to admit fresh medium into the reactor space (8) from the reservoir (4) above the separator. The apparatus is simpler than prior art arrangements since the culture medium is regenerated without the use of pipes, pumps, valves and pipework to meter fresh medium into the reaction space. The medium introduced and the cell culture zone are protected against contamination by microorganisms and against excessive evaporation.
DESCRIPTION OF DRAWING(S) - The diagram shows the cell culture apparatus.
overall device 1
cell culture under investigation 2
trough-shaped receptacle 3
fresh culture medium 4
floor of receptacle 5
sensors and measuring devices 6
vertically displaceable separator 7
reaction space defined by base of separator 8
liquid overflow channel between periphery of separator and receptacle wall 9
head of separator 10
rod-shaped shaft 11
container rim 12
lid 13
reservoir space 14
channel connecting with the reactor space 15
seal 16
pipette 17
electrode or sensor 18
optional microporous membrane as protective cover over the cell culture 23
indicates lack of tight seal between receptacle rim and lid to allow gas exchange between the culture medium and the atmosphere 26
Dwg.1/11
FS CPI EPI
FA AB; GI
MC CPI: A04-E08; A12-W11L; D05-H08; D05-H09
EPI: S03-E13D; S03-E14H
TECH UPTX: 20010402
TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Apparatus: The bottom of the receptacle (3) is provided with one or more sensors and/or measurement devices (6) in the vicinity of the reaction space (8). The sensors (6) may be in the form of a sensor array with several different

separate sensors. The sensors may be semiconductor devices or other sensors such as optical devices or biological sensors.

TECHNOLOGY FOCUS - POLYMERS - Preferred Materials: The separator body (7) is made from a smooth, cell-repellent, inert and easily sterilizable material, especially polytetrafluoroethylene.

L50 ANSWER 2 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 2000-545155 [50] WPIX
DNN N2000-403309 DNC C2000-162417
TI Unit for examining fluids in three dimensions, especially containing cells, comprises stacked conductive, insulating, transparent and opaque layers with transverse reflector layers and membranes formed on semiconductor chip.
DC B04 D16 S03
IN GAHLE, H; IGEL, G; **LEHMANN, M**; GAHLE, J I
PA (MICR-N) MICRONAS INTERMETALL GMBH; (MICR-N) MICRONAS GMBH
CYC 26
PI EP 1030174 A2 20000823 (200050)* DE 11p G01N027-07 <--
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
DE 19907164 A1 20000914 (200053) G01N001-28 <--
JP 2000241343 A 20000908 (200058) 8p G01N021-03 <--
ADT EP 1030174 A2 **EP 1999-125340 19991220**; DE 19907164 A1 **DE 1999-19907164 19990219**; JP 2000241343 A **JP 2000-38352 20000216**
PRAI **DE 1999-19907164 19990219**
IC ICM **G01N001-28; G01N021-03; G01N027-07**
ICS **G01N021-64**
AB EP 1030174 A UPAB: 20001010
NOVELTY - A unit for examining fluids in three dimensions comprising two solid layers (5a, 5b, 6a, 6b) on a substrate (3) which are electrically and/or optically conductive and/or transmissive, and correspondingly isolated from each other, is new. They are stacked (4) with a recess (10) through them, above the substrate.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a method of constructing the unit, which is essentially a layer-forming process.

USE - The unit is useful as a measurement cell with optical and electrical connections, capable of implementation on a semiconductor chip.

ADVANTAGE - The cell extends measurement into three dimensions, with access from the base and sides of the recess. It is particularly useful for physiological investigations of biological cells, and an improvement on prior art in e.g. WO9531716-A1. Local electrical and/or optical differences in the cell membrane can be examined.

DESCRIPTION OF DRAWING(S) - Cross sections through the device are seen.
substrate 3
stack 4
solid layers 5a, 5b, 6a, 6b
recess 10
projections 12
Dwg.1, 2/3
FS CPI EPI
FA AB; GI; DCN
MC CPI: B04-F01; B11-C08B; B11-C08E; B12-K04; D05-H09
EPI: S03-E02B
TECH UPTX: 20001010
TECHNOLOGY FOCUS - ELECTRONICS - Preferred Device: The device is particularly useful for cell measurements. It can be used for e.g. conductance, polarimetry, and optical transmissivity measurements, with or without a separation membrane and differing fluids.
Preferred Features: The base of the recess has layer(s) which are electrically and/or optically conducting (i.e. optically transmitting). Layers may have a transverse metallic coating, for reflection. Projections (12) (conductive or transmissive) are formed in the recess. Layers couple light into and out from the recess. There is a sensor in the base. In the

recess, an ion selective membrane is attached to a projection. Further such recesses are included.

L50 ANSWER 3 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 2000-074881 [07] WPIX
DNN N2000-058756
TI Chip carrying sensors with connective tracks to terminal pads, supported in sealed portion of substrate.
DC S03 U11 U12 U14
IN BAUMANN, W; EHRET, R; GAHLE, H; IGEL, G; **LEHMANN, M**; SIEBEN, U; WOLF, B
PA (MICR-N) MICRONAS INTERMETALL GMBH; (MICR-N) MICRONAS GMBH
CYC 27
PI EP 969510 A2 20000105 (200007)* DE 13p H01L025-065 <--
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
DE 19829121 A1 20000120 (200011) H01L021-52 <--
DE 19861113 A1 20000224 (200017) H01L021-52 <--
JP 2000055849 A 20000225 (200021) 11p G01N027-00 <--
DE 19829121 C2 20000608 (200032) H01L021-52 <--
DE 19861113 C2 20001102 (200056) H01L021-52 <--
US 6288440 B1 20010911 (200154) H01L023-495 <--
ADT EP 969510 A2 **EP 1999-112071 19990623**; DE 19829121 A1 **DE 1998-19829121 19980630**; DE 19861113 A1 **Div ex DE 1998-19829121 19980630, DE 1998-19861113 19980630**; JP 2000055849 A **JP 1999-184107 19990629**; DE 19829121 C2 **DE 1998-19829121 19980630**; DE 19861113 C2 **Div ex DE 1998-19829121 19980630, DE 1998-19861113 19980630**; US 6288440 B1 **US 1999-342697 19990629**
FDT DE 19829121 A1 Div in DE 19861113; DE 19861113 A1 Div ex DE 19829121; DE 19829121 C2 Div in DE 19861113; DE 19861113 C2 Div ex DE 19829121
PRAI **DE 1998-19829121 19980630; DE 1998-19861113 19980630**
IC ICM **G01N027-00**; H01L021-52; H01L023-495; H01L025-065
ICS A61B005-00; B81C003-00; **C12Q001-00**; **G01N027-30**; **G01N027-414**; **G01N033-483**; H01L025-07; H01L049-00
ICA C12M001-00
AB EP 969510 A UPAB: 20000209
NOVELTY - The chip (4) is inserted into the penetration (3), such that its opposite ends project out on each side of the substrate (2). The projection (10) on one side, carries the component (5), especially a sensor. The projection (10') on the other, includes the pad (8). The track (7) connecting sensor and pad, passes through the penetration. Between substrate and chip, a seal is provided.

USE - To mount a minute sensor, formed as an integrated circuit on a chip with tracks and connection pads, keeping the assembly safely sealed from an aggressive liquid.

ADVANTAGE - In essence, the contact pads are made remote and sealed from the nutrient, which contains ions. The pads must be exposed to make connections, before sealing. Conventional plastic seals in contact with nutrient, are found subject to ion migration beneath them. The new arrangement keeps pads away from nutrient. Apart from the pads, the remainder of the chip is surface- passivated normally, during production; known to be satisfactory in service. The new arrangement is cheap to manufacture and corrosion-resistant. Implementation is further illustrated and discussed in the disclosure.

DESCRIPTION OF DRAWING(S) - The substrate is seen in cross section to be penetrated by a corner of the chip.
substrate 2
penetration 3
chip 4
track 7
pad 8
projection 10,10'
Dwg.3/7
FS EPI
FA AB; GI

MC EPI: S03-E03C; S03-E14H6; U11-C; U11-D01C9; U11-D03C1A; U12-B03E; U14-H04B1; U14-H04B2
TECH UPTX: 20000209
TECHNOLOGY FOCUS - BIOTECHNOLOGY - The sensor is suitable for investigations of biological cells in a nutrient on the substrate surface.

L50 ANSWER 4 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 2000-054558 [05] WPIX
CR 1999-509770 [43]
DNN N2000-042540 DNC C2000-014477
TI Measuring electrical potential of single biological cell in nutrient, optionally carrying out micromanipulations.
DC B04 D16 J04 S03
IN BAUMANN, W; BRISCHWEIN, M; EHRET, R; FREUND, I; GAHLE, H; IGEL, G; **LEHMANN, M**; SIEBEN, U; WOLF, B
PA (MICR-N) MICRONAS INTERMETALL GMBH
CYC 2
PI DE 19827957 A1 19991209 (200005)* 19p G01N027-327 <--
JP 11346764 A 19991221 (200010) 12p C12N013-00 <--
JP 11346794 A 19991221 (200010) 14p C12Q001-02 <--
DE 19827957 C2 20000629 (200033) G01N027-327 <--
ADT DE 19827957 A1 **DE 1998-19827957 19980623**; JP 11346764 A **JP 1999-143594 19990524**; JP 11346794 A **JP 1999-145284 19990525** ; DE 19827957 C2 **DE 1998-19827957 19980623**
PRAI **DE 1998-19823655 19980527**; **DE 1998-29811066 19980623** ; **DE 1998-19841337 19980910**
IC ICM C12N013-00; **C12Q001-02**; **G01N027-327**
ICS C12M001-00; C12M001-34; C12M001-42; C12N015-09; **G01N027-26**; **G01N033-483**; **G01N033-487**
AB DE 19827957 A UPAB: 20000712
NOVELTY - A cell (3) rests on a carrier (21). An opening is made through the cell membrane within the resting area (5), away from the edge of the carrier. The measurement is taken through this opening.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the corresponding apparatus. Additional points noted include adherent cell sealing to the surface, an internal cell probe connected to an amplifier and insulated from the surrounding resting area, and a poration tool in the resting area. Preferred Features: Cell potential is measured through the opening, being the electrical potential between cell fluid and nutrient. Electroporation, mechanical impulse or focused ultrasound makes the opening. Several ultrasonic waves are superimposed additively, increasing amplitude at the opening point. Penetration results from laser radiation, or a chemical substance. A substance activated electrically, chemically and/or by radiation and/or an electrical field, makes the opening. Reduced or excess pressure is applied. Suction fixes the cell to the resting area (5). Following opening, cell fluid may be extracted for investigation. Intracellular manipulation takes place through the hole. Medicament and/or foreign material and/or a biological substance may be introduced into the cell. Salient features of the preferred apparatus include a reference electrode. The poration electrode, its operation and association with a semiconductor forming a switch, are further described. Actuation and control are elaborated.

USE - To measure cell potential, and optionally to carry out intra cell manipulation and exchange, cell size measurement and other microscale operations.

ADVANTAGE - Conventionally, costly, elaborate micromanipulators are used to insert a hollow needle into cells, but only a small number of cells may be treated in this way, with difficulty. Awkward manual positioning of the needle is avoided simply in the subject method, by locating the cell on an object carrier for penetration. This is also arranged to form an insulated seal, assisting measurement. Measurement is not limited to cell potential; ion concentration, gas content or temperature, exemplify other feasible measurements. DC and AC potentials, especially rapidly changing potentials can be measured and/or applied. The electroporation electrode can subsequently be used for measurement. Numerous cells can be precisely arrayed on a suitably microstructured

object plate for examination. This inventive disclosure contains further discussion.

DESCRIPTION OF DRAWING(S) - The drawing shows an apparatus with an object carrier.

cell 3

resting area 5

carrier 21

Dwg.11/22

FS CPI EPI

FA AB; GI; DCN

MC CPI: B04-F01; B11-C08; B12-K04; D05-H04; J04-C03

EPI: S03-E03B; S03-E14H

TECH UPTX: 20000128

TECHNOLOGY FOCUS - BIOTECHNOLOGY - In addition to potential measurement, the disclosure suggests intracellular manipulative operations (keyhole cell surgery) carried out on the microscale, through the opening made. Additions, e.g. of genes, may be carried out.

TECHNOLOGY FOCUS - ELECTRONICS - Electronic instrumentation and -poration means are described. An FET, especially a JFET is used for impedance transformation from the microscale electrode. A microsensor measures cell size.

L50 ANSWER 5 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 1999-509770 [43] WPIX

CR 2000-054558 [04]

DNC C1999-149163

TI Intracellular manipulation of **biological** cell contents, assisting injection or removal of substances or cell components.

DC B04 D16

IN BAUMANN, W; BRISCHWEIN, M; EHRET, R; FREUND, I; GAHLE, H; IGEL, G; LEHMANN, M; SIEBEN, U; WOLF, B; GAHLE, J; LEHMAN, M

PA (MICR-N) MICRONAS INTERMETALL GMBH

CYC 25

PI DE 19841337 C1 19990923 (199943)* 13p C12N013-00 <--

EP 960933 A1 19991201 (200001) DE C12M003-00

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

EP 962524 A1 19991208 (200002) DE C12M003-00 <--

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

ADT DE 19841337 C1 **DE 1998-19841337 19980910**; EP 960933 A1 EP 1999-109415 19990511; EP 962524 A1 **EP 1999-107819 19990420**

PRAI DE 1998-29811066 19980623; DE 1998-19823655 19980527

IC ICM C12M003-00; C12N013-00

ICS C12N015-89

AB DE 19841337 C UPAB: 20000128

NOVELTY - The opening is introduced into the cell (3) membrane within the area of the cell mounting (5) and spaced away from the support edge

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for suitable equipment which includes the cell mounting with e.g. appropriate instruments, electrodes and/or radiative energy sources.

USE - To add or remove substances and/or components to or from the interior of a single cell.

ADVANTAGE - The new method simplifies manipulation of and access to cell contents. It obviates the conventional, expensive, time-consuming manual positioning of a hollow needle onto the cell of interest. Resting and adhering on the mounting, the remainder of the cell and its membrane seal the contents. The contents of the cell are effectively electrically-insulated from the nutrient (2) in this configuration.

DESCRIPTION OF DRAWING(S) - The cell is seen attached to the support, in cross section.

nutrient 2

cell 3

cell mounting 5

Dwg.1/11

FS CPI

FA AB; GI
MC CPI: B11-C09; D05-H13
TECH UPTX: 19991020
TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Apparatus: The opening is made in the cell membrane by one or more of the following, which is applied, acts, or is focused to act, locally: electroporation (voltage pulse); mechanical impulse; ultra- or hypersonic sound waves; such waves in superposition to induce high amplitude oscillation; energetic radiation, laser radiation; chemical poration substance; radiation-, chemically- or electrical field- activated substance; reduced pressure and/or overpressure. Suction attaches the cell to the resting surface. Through the cell membrane opening, a substance and/or cell component is removed from the cell interior. Alternatively or in addition, such a substance or component is introduced.

L50 ANSWER 6 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1999-479925 [41] WPIX
CR 1999-419853 [30]
DNN N1999-357285
TI Object surface structuring method for processing of semiconductor wafer.
DC S03 U11
IN BAUMANN, W; EHRET, R; GAHLE, H; IGEL, G; **LEHMANN, M**; WOLF, B
PA (MICR-N) MICRONAS INTERMETALL GMBH
CYC 1
PI DE 19758533 A1 19990812 (199941)* 3p H01L021-308 <--
ADT DE 19758533 A1 **Div ex DE 1997-19753790 19971204, DE 1997-19758533 19971204**
FDT DE 19758533 A1 Div ex DE 19753790
PRAI DE 1997-19753790 19971204; DE 1997-19758533 19971204
IC ICM H01L021-308
ICS **G01N027-414**; H01L051-40
AB DE 19758533 A UPAB: 19991011
NOVELTY - The method involves accumulating adhering biocomponents at the surface of the object in a feed or an osmotic protection medium, whereby the biocomponents produce an excretory product or remove surface material to thereby form a surface structure. The feed or the osmotic protection medium with the therein contained biocomponents is removed from the object surface after forming the surface structure.
USE - Especially for processing of semiconductor wafer.
ADVANTAGE - Provides simple and cost-effective method.
Dwg.0/0
FS EPI
FA AB
MC EPI: S03-E03C; U11-C06A

L50 ANSWER 7 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1999-419853 [36] WPIX
CR 1999-479925 [41]
DNN N1999-313445 DNC C1999-123590
TI Biochemical method of examining or structuring a surface or surface layer.
DC J04 S03 T01 U11
IN BAUMANN, W; EHRET, R; GAHLE, H; IGEL, G; **LEHMANN, M**; WOLF, B
PA (MICR-N) MICRONAS INTERMETALL GMBH; (MICR-N) MICRONAS GMBH
CYC 20
PI DE 19753790 A1 19990617 (199936)* 5p G01N033-00 <--
WO 9930130 A2 19990617 (199936) DE G01N013-00 <--
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: JP US
DE 19753790 C2 20010719 (200141) G01N033-00 <--
ADT DE 19753790 A1 **DE 1997-19753790 19971204**; WO 9930130 A2 **WO 1998-EP7597 19981125**; DE 19753790 C2 **DE 1997-19753790 19971204**
FDT DE 19753790 A1 Div in DE 19758533; DE 19753790 C2 Div in DE 19758533
PRAI **DE 1997-19753790 19971204**
IC ICM **G01N013-00**; **G01N033-00**
ICS **G01N027-327**; **G01N033-483**; G06T007-00; H01L021-66

AB DE 19753790 A UPAB: 20010724
NOVELTY - To the surface or surface layer, chemi-selective biocomponents are applied in the presence of nutrient or osmotic protective medium. The biocomponents contact the surface, or are closer than the detection zone to it. The surface is then examined, taking at least one measurement, which is compared with a reference value. From the result, conclusions are drawn regarding chemical and/or topological characteristics of the object.

DETAILED DESCRIPTION - Preferred Features: Some of the biocomponents are deposited on the surface. Biocomponents and nutrient or osmotic protection are applied. Measurements are taken at intervals. At least one evaluation is made optically, as an image, which is compared with a reference image. An interferometric pattern generated when recording the image, is compared with an interferometric reference image. Measurements are taken with an electrical or electrochemical sensor. The biocomponents include growth-, structure- or function-moderating materials, acting on the object surface. The nutrient or osmotic protection and biocomponents are removed after testing the surface. In a similar method, the surface is altered as the principal objective, without necessarily taking any measurements.

USE - To measure or alter chemical or topological characteristics of a surface or surface layer using biological substances and/or organisms.

ADVANTAGE - The technique is simple in application and offers high measurement sensitivity through interferometric and comparative methods. Topological and/or chemical characteristics are revealed. These characteristics are revealed selectively and locally, by appropriate choice of the biological test agents. Despite comparatively wide applicability, the method is fundamentally simple to apply. Measurements may be made on-line. Operating costs are small.

Dwg.0/0

FS CPI EPI
FA AB
MC CPI: J04-B01
EPI: S03-E03C; S03-E14H; T01-J10B2; U11-F01A3; U11-F01B9
TECH UPTX: 19990908

TECHNOLOGY FOCUS - BIOTECHNOLOGY - Various living or otherwise, biological and/or microbiological, organisms, cells, species and substances, reveal chemical and/or topological characteristics of a surface or surface layer, with selectivity. Surface-sensitive tumor cells may be used.

TECHNOLOGY FOCUS - IMAGING AND COMMUNICATION - Biological effects at a surface are generated, seen and recorded as images. Interferometric techniques are employed. Image correlation figures.

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Biological materials test surfaces or surface layers, revealing their chemical or topological characteristics.

TECHNOLOGY FOCUS - COMPUTING AND CONTROL - Images of biologically-affected surfaces are compared, to reveal chemical or topological characteristics. On-line measurement is feasible.

TECHNOLOGY FOCUS - ELECTRONICS - Image detection and/or electrical and/or electrochemical detectors are employed. The method is applicable to investigation of thin coatings, e.g. in semiconductor wafer processing. A specific example concerns surface comparisons of otherwise identical ISFETs (ion-selective field effect transistors), manufactured under differing conditions.

L50 ANSWER 8 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1998-231526 [21] WPIX
DNN N1998-183333 DNC C1998-072411
TI Sensor production in MOS structure - by combining MOS processing with production of metal sensor electrode.
DC L03 S03 U11 U12
IN BAUMANN, W; EHRET, R; GAHLE, G; IGEL, G; **LEHMANN, M**; WOLF, B; GAHLE, H

PA (INTT) DEUT ITT IND GMBH; (MICR-N) MICRONAS INTERMETALL GMBH; (MICR-N) MICRONAS GMBH
CYC 20
PI DE 19641777 A1 19980416 (199821)* 6p H01L021-28 <--
EP 841561 A2 19980513 (199823) DE 7p G01N027-12 <--
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
JP 10199989 A 19980731 (199841) 5p H01L021-8234
US 6017775 A 20000125 (200012)# H01L021-44
EP 841561 B1 20010228 (200113) DE G01N027-12 <--
R: DE FR GB IT NL
DE 59703047 G 20010405 (200121) G01N027-12 <--
DE 19641777 C2 20010927 (200156) H01L021-28 <--
ADT DE 19641777 A1 **DE 1996-19641777 19961010**; EP 841561 A2 EP 1997-117232 19971006; JP 10199989 A JP 1997-277521 19971009; US 6017775 A **US 1997-948127 19971009**; EP 841561 B1 EP 1997-117232 19971006; DE 59703047 G DE 1997-503047 19971006, EP 1997-117232 19971006; DE 19641777 C2 **DE 1996-19641777 19961010**
FDT DE 59703047 G Based on EP 841561
PRAI **DE 1996-19641777 19961010; US 1997-948127 19971009**
IC ICM **G01N027-12**; H01L021-28; H01L021-44; H01L021-8234
ICS **G01N027-414**; H01L027-088
AB DE 19641777 A UPAB: 19980528
A method of producing a sensor with a metal electrode in a MOS structure involves: (a) producing the MOS structure by a conventional MOS process up to the passivation layer formation step, this process including production of a sensor region (7) with a structure of material with predetermined adhesion for the metal of the electrode (13); (b) exposing the sensor region (7) by etching the passivation layer (12) and any layers between the sensor region (7) and the passivation layer (12); and (c) metallising the MOS structure surface, the metal layer remaining adherent only on the structure provided for the metal electrode (13).
ADVANTAGE - The method permits conventional MOS processing up to the passivation layer formation step, without the need for additional masks to produce and subsequently expose the sensor region and the structure for the electrode, and allows MOS processing to be combined with metal electrode production without the need for photolithography, etching and lacquer removal steps and without contamination of the MOS structure or MOS processing equipment by the precious metal of the metal electrode.
Dwg.5/5
FS CPI EPI
FA AB; GI
MC CPI: L04-C10
EPI: S03-E03; U11-C05F6; U12-B03E

L50 ANSWER 9 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1998-009888 [02] WPIX
DNC C1998-003702
TI Biochemical oxygen demand (BOD) measuring device - uses arxula yeast microorganisms immobilised on physical transducer.
DC D15 D16
IN ADLER, K; KUNZE, G; **LEHMANN, M**; RIEDEL, K
PA (PFLA-N) INST PFLANZENGENETIK & KULTURPFLANZENFOR
CYC 22
PI DE 19620250 A1 19971127 (199802)* 7p C12Q001-02 <--
WO 9744658 A1 19971127 (199802) DE 11p G01N033-18 <--
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU CA CN JP US
AU 9730892 A 19971209 (199824) G01N033-18 <--
ADT DE 19620250 A1 DE 1996-19620250 19960521; WO 9744658 A1 WO 1997-DE1058 19970520; AU 9730892 A AU 1997-30892 19970520
FDT AU 9730892 A Based on WO 9744658
PRAI DE 1996-19620250 19960521
IC ICM **C12Q001-02**; **G01N033-18**
AB DE 19620250 A UPAB: 19980112
Biochemical oxygen demand (BOD) measuring device comprises a physical transducer with arxula type yeast microorganisms immobilised on it. Also

claimed is the measuring method using this device in a liquid or solution comprising 0-10 % salt, especially cooking salt.

USE - The measuring device is for measuring the degree of pollution in effluents.

ADVANTAGE - The arxula microorganisms used in the device have a relatively high temperature and salt tolerance. The analysis is rapid giving BOD values in minutes.

Dwg.0/0

FS CPI
FA AB
MC CPI: D04-A; D05-A01A2; D05-A04

=> d 8 all abs tech

L55 ANSWER 8 OF 54 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1999-509744 [43] WPIX
DNN N1999-379916 DNC C1999-149157
TI Electro-manipulation of cells for permeation and fusion reduces stress on cells due to **pH** fluctuations.
DC B04 D16 P34 S03 S05
IN FUHR, G; HAGEDORN, R; ZIMMERMANN, U
PA (FUHR-I) FUHR G; (EVOT-N) EVOTEC BIOSYSTEMS AG
CYC 21
PI DE 19823047 C1 19990826 (199943)* 8p C12N013-00
WO 9961594 A2 19991202 (200004) DE C12N013-00
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: JP US
EP 1141230 A2 20011010 (200167) DE C12M003-00
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
ADT DE 19823047 C1 DE 1998-19823047 19980522; WO 9961594 A2 WO 1999-EP3442 19990519; EP 1141230 A2 EP 1999-953355 19990519, WO 1999-EP3442 19990519
FDT EP 1141230 A2 Based on WO 9961594
PRAI DE 1998-19823047 19980522
IC ICM C12M003-00; C12N013-00
ICS A61N001-30; **C12M001-42**
AB DE 19823047 C UPAB: 19991020

NOVELTY - Handling biological objects in an ambient medium, for a given pulse time (t1) in an electrical field, using at least two **electrodes**, is new.

DETAILED DESCRIPTION - Handling biological objects in an ambient medium, for a given pulse time (t1) in an electrical field, using at least two **electrodes** is new. During the pulse time (t1) of each **electrode**, at least one is controlled as an anode and the other is controlled as a cathode so that, at each **electrode**, there is a succession of alternating increases and decreases in the **pH** value of the electrolyte. During the pulse time, the object is subjected to a given number of part-pulses of successively alternating polarity or field direction. The development of H+ or OH- ion concentrations at an **electrode**, during a part-pulse, is as fast or faster than the diffusion of the H+ or OH- ion concentrations from the preceding part-pulse from the **electrode** in the ambient medium. The successive and alternating part-pulses have pulse shapes and/or pulse amplitudes which are selected to generate the same H+ or OH- ion concentrations with the increasing and decreasing **pH** value of the electrolyte. The part-pulse shapes are rectangular, exponential, triangular, ramp or sine. An INDEPENDENT CLAIM is included for an apparatus for handling biological objects in an ambient medium, between at least two **electrodes**, linked to a pulse generator. The pulse generator is linked to the **electrodes** through a control circuit which is set so that the **electrodes** are subjected to at least two part-pulses during a given pulse time, of opposing polarities or field directions.

Preferred Features: The control circuit has a final amplifier connected to the pulse generator to give part-pulses in one polarity or field direction, and a further final amplifier to give part-pulses in the

opposite polarity or field direction, for delivery to the **electrodes**. The pulse generator has at least one reservoir condenser and the control circuit has at least one change switch which, during the pulse time, switches between the **electrodes**. The pulse generator delivers an alternating or tristate voltage. The control circuit has a gate circuit, to link the pulse generator with the **electrodes** during the pulse time. The pulse generator can digitize the part-pulse in a controlled amplitude and/or modify suitable signal shapes and/or give an asymmetry in the pulse height, pulse sequence or pulse length.

USE - The method is for a permeation and/or fusion of cells or cell groups, or synthetic structures encapsulated in a membrane such as liposomes or vesicles, or for handling membranous or layered materials. The apparatus is an electro-proportion system with an electro-permeation or fusion chamber, or as a micro-system with a multiple **electrode** array, with characteristic **electrode** dimensions of 100 mu m or less, and **electrode** intervals equal to several cell diameters, for the electro-manipulation of cells.

ADVANTAGE - The technique reduces the stress on cells through changes in the **pH** value and suppresses **electrode** reactions.

DESCRIPTION OF DRAWING(S) - The drawing shows a diagram of an exponential poration pulse in part-pulses.

pulse time t1

Dwg.1b/7

FS CPI EPI GMPI

FA AB; GI

MC CPI: B11-C08C; B11-C08E1; D05-H08; D05-H09

EPI: S03-E14H9; S05-X

AN 1999-509744 [43] WPIX

AB DE 19823047 C UPAB: 19991020

NOVELTY - Handling biological objects in an ambient medium, for a given pulse time (t1) in an electrical field, using at least two **electrodes**, is new.

DETAILED DESCRIPTION - Handling biological objects in an ambient medium, for a given pulse time (t1) in an electrical field, using at least two **electrodes** is new. During the pulse time (t1) of each **electrode**, at least one is controlled as an anode and the other is controlled as a cathode so that, at each **electrode**, there is a succession of alternating increases and decreases in the **pH** value of the electrolyte. During the pulse time, the object is subjected to a given number of part-pulses of successively alternating polarity or field direction. The development of H+ or OH- ion concentrations at an **electrode**, during a part-pulse, is as fast or faster than the diffusion of the H+ or OH- ion concentrations from the preceding part-pulse from the **electrode** in the ambient medium. The successive and alternating part-pulses have pulse shapes and/or pulse amplitudes which are selected to generate the same H+ or OH- ion concentrations with the increasing and decreasing **pH** value of the electrolyte. The part-pulse shapes are rectangular, exponential, triangular, ramp or sine. An INDEPENDENT CLAIM is included for an apparatus for handling biological objects in an ambient medium, between at least two **electrodes**, linked to a pulse generator. The pulse generator is linked to the **electrodes** through a control circuit which is set so that the **electrodes** are subjected to at least two part-pulses during a given pulse time, of opposing polarities or field directions.

Preferred Features: The control circuit has a final amplifier connected to the pulse generator to give part-pulses in one polarity or field direction, and a further final amplifier to give part-pulses in the opposite polarity or field direction, for delivery to the **electrodes**. The pulse generator has at least one reservoir condenser and the control circuit has at least one change switch which, during the pulse time, switches between the **electrodes**. The pulse generator delivers an alternating or tristate voltage. The control circuit has a gate circuit, to link the pulse generator with the **electrodes** during the pulse time. The pulse generator can digitize

the part-pulse in a controlled amplitude and/or modify suitable signal shapes and/or give an asymmetry in the pulse height, pulse sequence or pulse length.

USE - The method is for a permeation and/or fusion of cells or cell groups, or synthetic structures encapsulated in a membrane such as liposomes or vesicles, or for handling membranous or layered materials. The apparatus is an electro-proportion system with an electro-permeation or fusion chamber, or as a micro-system with a multiple **electrode** array, with characteristic **electrode** dimensions of 100 mu m or less, and **electrode** intervals equal to several cell diameters, for the electro-manipulation of cells.

ADVANTAGE - The technique reduces the stress on cells through changes in the **pH** value and suppresses **electrode** reactions.

DESCRIPTION OF DRAWING(S) - The drawing shows a diagram of an exponential poration pulse in part-pulses.

pulse time t1

Dwg.1b/7

=> d 15 all abs tech

L55 ANSWER 15 OF 54 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1998-516016 [44] WPIX
DNN N1998-403367 DNC C1998-155192
TI Concentration measuring method in biosensor - involves specifying analytical curve of biosensor **electrode** by **pH** obtained by **pH** sensor **electrode**, based on which concentration of target is measured.
DC B04 D15 D16 J04 S02 S03
PA (NIOD) NOK CORP
CYC 1
PI JP 10227756 A 19980825 (199844)* 4p G01N027-327 <--
ADT JP 10227756 A JP 1997-41428 19970212
PRAI JP 1997-41428 19970212
IC ICM **G01N027-327**
ICS G01N027-26; G01N027-27; G01N027-416
AB JP 10227756 A UPAB: 19981104
Concentration measuring method in biosensor involves providing **pH** sensor **electrode** and biosensor **electrode** on an identical insulating board. The analytical curve of biosensor **electrode** is specified by **pH** obtained by the **pH** sensor **electrode**. The concentration of the target is measured by the above curve.

USE - The biosensor is used in glucose control in food manufacturing process, and fermentation research for measuring alcohol, lactic acid, pyruvic acid and biochemical oxygen demand.

ADVANTAGE - The biosensor corrects influence of sample **pH** given to biosensor output. Measurement is precise.

Dwg.0/0
FS CPI EPI
FA AB; DCN
MC CPI: B05-C08; B10-A07; B10-C04D; B10-E04D; B11-A; B11-C08D; B12-K04A; B12-K04E; D04-A01J; D05-H09; J04-B01; J04-C01
EPI: S02-K02A; S03-E03C1; S03-E14H5
AN 1998-516016 [44] WPIX
AB JP 10227756 A UPAB: 19981104
Concentration measuring method in biosensor involves providing **pH** sensor **electrode** and biosensor **electrode** on an identical insulating board. The analytical curve of biosensor **electrode** is specified by **pH** obtained by the **pH** sensor **electrode**. The concentration of the target is measured by the above curve.

USE - The biosensor is used in glucose control in food manufacturing process, and fermentation research for measuring alcohol, lactic acid, pyruvic acid and biochemical oxygen demand.

ADVANTAGE - The biosensor corrects influence of sample **pH**

given to biosensor output. Measurement is precise.
Dwg.0/0

=> d 22 23 all abs tech

L55 ANSWER 22 OF 54 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1997-247537 [23] WPIX
DNN N1997-204046
TI Reference **electrode** assembly for mini-integrated electrochemical analyser - has reference **electrode** with flow cell where liquid solution meets sample solution at junction constrained by porous material region permeable to water and salts.
DC S03
IN CHAN, A D C; FOOS, J S; RASMUSSEN, J E; SCHULKIND, R L; ZALENSKI, J A; CHAN, A D
PA (CIBA) CIBA CORNING DIAGNOSTICS CORP
CYC 15
PI EP 772041 A1 19970507 (199723)* EN 10p G01N027-28
R: AT BE CH DE DK ES FR GB IT LI
AU 9660844 A 19970508 (199727) G01N027-401
CA 2184954 A 19970504 (199736) G01N027-333
JP 09170998 A 19970630 (199736) 8p G01N027-30
MX 9603915 A1 19970501 (199823) G01N027-00
KR 97028540 A 19970624 (199826) G01N027-327 <--
ADT EP 772041 A1 EP 1996-307937 19961101; AU 9660844 A AU 1996-60844 19960801; CA 2184954 A CA 1996-2184954 19960906; JP 09170998 A JP 1996-292972 19961105; MX 9603915 A1 MX 1996-3915 19960906; KR 97028540 A KR 1996-51550 19961101
PRAI US 1995-552833 19951103
REP 3.Jnl.Ref; EP 201712; EP 388017; JP 57053648; WO 8303005
IC ICM G01N027-00; G01N027-28; G01N027-30; **G01N027-327**; G01N027-333; G01N027-401
ICS G01N021-30; G01N027-31
AB EP 772041 A UPAB: 19970606
The assembly includes flow cell having a constraint comprising a region of porous material permeable to water and salts, remote reservoir for holding the liquid junction solution, device for moving the liquid junction solution from the reservoir to the constraint, and reference contact region.

The constraint is a membrane, preferably cellophane attached to the flow cell with hermetic seal. the liquid junction solution comprises an equitransferent salt solution, in non-saturated concentration, e,g, pottasium chlorate. Ag+ ions could be comprised in the liquid junction solution and the reference contact region is a silver-based conductive material.

USE - For **pH** and or ion-selective **electrode** potentiometric sensors.

Dwg.1/2
FS EPI
FA AB; GI
MC EPI: S03-E03C
AN 1997-247537 [23] WPIX
AB EP 772041 A UPAB: 19970606
The assembly includes flow cell having a constraint comprising a region of porous material permeable to water and salts, remote reservoir for holding the liquid junction solution, device for moving the liquid junction solution from the reservoir to the constraint, and reference contact region.

The constraint is a membrane, preferably cellophane attached to the flow cell with hermetic seal. the liquid junction solution comprises an equitransferent salt solution, in non-saturated concentration, e,g, pottasium chlorate. Ag+ ions could be comprised in the liquid junction solution and the reference contact region is a silver-based conductive material.

USE - For **pH** and or ion-selective **electrode**

potentiometric sensors.
Dwg.1/2

L55 ANSWER 23 OF 54 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1997-056110 [06] WPIX
DNN N1997-045994 DNC C1997-018574
TI Bio-sensor for determining specific components in sample - comprises active and counter **electrodes**, reactive layer contg hydrophilic polymer and enzyme and **pH** controlling layer.
DC B04 D16 J04 S03
PA (MATU) MATSUSHITA DENKI SANGYO KK
CYC 1
PI JP 08304328 A 19961122 (199706)* 5p G01N027-327 <--
ADT JP 08304328 A JP 1995-109614 19950508
PRAI JP 1995-109614 19950508
IC ICM **G01N027-327**
ICS G01N027-28
AB JP 08304328 A UPAB: 19970205
Bio-sensor comprises **electrodes** system comprising active **electrode** and a counter **electrode**, a reactive layer contg. at least hydrophilic polymer and oxidising and reducing enzyme, a cover material, and **pH** controlling layer.
ADVANTAGE - The bio-sensor is free from degradation caused by storage, and can determine specified components in a sample having appropriate **pH** for enzyme.
Dwg.1/2
FS CPI EPI
FA AB; GI
MC CPI: B04-C03; B04-L04; B11-C08D1; B11-C08E3; B12-K04; D05-A01A5; D05-A01B1; D05-H09; J04-C04
EPI: S03-E03
AN 1997-056110 [06] WPIX
AB JP 08304328 A UPAB: 19970205
Bio-sensor comprises **electrodes** system comprising active **electrode** and a counter **electrode**, a reactive layer contg. at least hydrophilic polymer and oxidising and reducing enzyme, a cover material, and **pH** controlling layer.
ADVANTAGE - The bio-sensor is free from degradation caused by storage, and can determine specified components in a sample having appropriate **pH** for enzyme.
Dwg.1/2

=> d his

(FILE 'HOME' ENTERED AT 10:56:42 ON 18 DEC 2001)
DEL HIS

FILE 'HCAPLUS' ENTERED AT 10:58:35 ON 18 DEC 2001
E LEHMANN M/AU
L1 293 S E3-E7,E40
E DE2000-10028692/AP,PRN
L2 0 S L1 AND BIOCOMPART?
L3 0 S L1 AND ?COMPART?
L4 8 S L1 AND ?MEMBRAN?
L5 30 S L1 AND PH##
L6 2 S L5 AND L4
L7 1 S L4 AND APPARATUS
L8 8 S L1 AND ELECTROD?
L9 2 S L8 AND L4,L5
E ELECTRODE/CT
E E04+A
E ELECTRODES/CT
E E3+ALL
L10 136109 S E3+NT
E ELECTRODE/CT

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                E E9+ALL
L11          6287 S E5
L12           439 S E12+NT
L13             3 S L1 AND L10-L12
L14             2 S L13 NOT PYRITE/TI
L15             4 S L6,L7,L9,L14
L16         12364 S L10-L12 AND PH##
L17            63 S L16 AND CULTUR?
L18            52 S L17 AND (16 OR 9)/SC,SX
L19            22 S L18 AND (FLOW THROUGH OR HYDROGEN ION OR ION OR ASSEMBLY OR M
                SEL DN L19 3 4 7 9 10 14 15 19 20
L20            13 S L19 NOT E1-E9
                E PH/CT
                E E3+ALL
L21         18308 S E7,E8,E6+NT
L22         24718 S E13+NT OR E14+NT OR E16+NT OR E18+NT
L23           827 S L21,L22 AND L10-L12
L24             9 S L23 AND CULTUR?
L25             1 S L24 NOT L18
L26            17 S L15,L20,L25
                E ELECTRICAL POTENTIAL/CT
                E E4+ALL
L27          1282 S E2
                E ELECTRIC POTENTIAL/CT
                E E3+ALL
L28         50688 S E4-E9
L29           817 S E32,E73,E78
L30         89457 S E4+NT
                E ELECTRIC POTENTIAL/CT
                E E4+ALL
L31           439 S E1
L32           816 S L16,L23 AND L27-L31
L33            73 S L32 AND (16 OR 9)/SC,SX
L34            73 S L32 AND (BIOCHEM?(L)METHOD?)/SC,SX
L35            73 S L33,L34
L36            70 S L35  NOT L17,L26
L37            29 S L36 AND (LANGMUIR OR CHOLESTEROL OR DISMUTASE OR BEEF OR CYTO
L38            15 S L36 AND (URICASE OR THIONINE OR VITAMIN OR UREA OR VIOLOGEN O
L39            27 S L36 NOT L37,L38
L40            44 S L26,L39
L41            44 S L40 AND L1-L40

     FILE 'HCAPLUS' ENTERED AT 11:43:53 ON 18 DEC 2001
                SET COST OFF

     FILE 'HCAPLUS' ENTERED AT 11:44:10 ON 18 DEC 2001

     FILE 'INPADOC' ENTERED AT 11:44:44 ON 18 DEC 2001
                E LEHMANN M/AU
L42            42 S E37,E38,E3
                E DE2000-10028692/AP,PRN
                SEL PN APPS

     FILE 'WPIX' ENTERED AT 11:46:33 ON 18 DEC 2001
L43            20 S E1-E98
                E DE2000-10028692/AP,PRN
                E LEHMANN M/AU
L44           184 S E3-E7
L45           191 S L43,L44
L46            19 S L45 AND (C12Q OR G01N OR C12P)/IC,ICM,ICS
L47             8 S L46 NOT (PRIMER OR NUCLEIC OR RHO OR PHYTASE OR GENE OR IMIDA
L48            13 S L43 NOT L46
L49             1 S L48 AND BIOLOGICAL
L50             9 S L47,L49

     FILE 'WPIX' ENTERED AT 11:52:23 ON 18 DEC 2001
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L51        1228 S G01N027-327/IC,ICM,ICS
L52         272 S C12M001-42/IC,ICM,ICS
L53        1496 S L51,L52
L54         970 S L53 AND ?ELECTROD?
L55          54 S L54 AND  PH##
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